

RYVKIN, I.A., kand.med.nauk (Moskva)

Role of heredity in the etiology of hypertension. Klin.med. 38
no.12:24-29 D '60. (MIRA 14:2)

1. Iz 1-y kafedry terapii (zav. - deystvitel'nyy chlen AMN SSSR
prof. M.S. Vovsi [deceased]) Tsentral'nogo instituta usovershenst-
vovaniya vrachev (dir. M.D. Kovrigina).
(HYPERTENSION) (HEREDITY OF DISEASE)

RYVKIN, I.A., kandidat meditsinskikh nauk.

Thrombotic diseases of the peripheral vessels (from foreign periodical literature). Vop.pat.serd.sos.sist. 3 no.3:3-20 '54. (MLBA 7:9)
(Thrombosis)

MYASNIKOV, Aleksandr Leonidovich, prof., red.; RYVKIN, Izrail'
Abramovich; BONDARENKO, B.A., red.

[Incidence of hypertension and coronary arteriosclerosis
and living conditions] Rasprostranenie gipertonicheskoi
bolezni i koronarnogo ateroskleroza i usloviia zhizni;
sbornik statei. Leningrad, Medicina, 1964. 166 p.
(17.8)

1. Direktor Instituta terapii AMN SSSR, deystvitel'nyy chlen
AMN SSSR (for Myasnikov). 2. Institut terapii AMN SSSR (for
Ryvkina).

RYVKIN, I.A.

"Cor et vasa" for 1960. Kardiologiia 1 no.2:83-85 Mr-Ap '61.
(MIRA 15:1)
(CARDIOLOGY--PERIODICALS)

RYVKIN, I. A. Doc Med Sci -- (diss) "The pre-hypertonic state." Mos, 1959
23 pp (Acad Med Sci USSR), 200 copies. Printed by duplicating machine.
(KL, 45-59, 149)

RYVKIN, I.A., kand.med.nauk (Moskva)

Control of cardiovascular diseases in the U.S.S.R. Med.sesstra
21 no.11:4-8 N '62. (MIRA 16:3)
(CARDIOVASCULAR SYSTEM--DISEASES)

RYVKIN, I.A.; IGNATOVA, L.N.

Significance of hereditary and environmental factors in the development of hypertension and lipid metabolism disorders; studies on twins. Vest. AMN SSSR 18 no.12:29-34 '63.
(MIRA 17:7)

1. Institut terapii AMN SSSR.

MYASNIKOV, A.L.; RYVKIN, I.A. (Moskva)

Prevention of hypertension and coronary atherosclerosis.
Vest. AMN SSSR 20 no.6:30-41 '65. (MIRA 18:9)

RYVKIN, I.A.; SEGAL', Yu.Ye.

Conditioned and unconditioned vascular reflexes in initial stages
of hypertension. Terap.arkh. 27 no.2:15-25 '55. (MIRA 8:7)

1. Iz 4-y Moskvoskoy klinicheskoy bol'nitsy (glavnyy vrach--zaslu-
zhennyy vrach RSFSR M.V.Ivanyukov) i Instituta psikiatrii (dir.—
Dotsent D.D.Fedotov) Ministerstva zdravookhraneniya SSSR.

(HYPERTENSION, physiology,

vasc. reflexes, conditioned & unconditioned in initial
stages of dis.)

(REFLEX, CONDITIONED,

vasc., in hypertension)

(BLOOD VESSELS, physiology,

vasc. reflexes, conditioned & unconditioned in initial
stages of hypertension)

(REFLIX,

vasc., conditioned & unconditioned in initial stages of
hypertension)

MYASNIKOV, A.L.; RYVKIN, I.A.

Research on hypertension, atherosclerosis, and coronary insufficiency
in 1960. Vest. AMN SSSR 15 no. 11:72-75 '60. (MIRA 13:12)
(HYPERTENSION) (ARTERIOSCLEROSIS) (CORONARY VESSELS)

RYVKIN, I.A., kand.med.nauk (Moskva)

Problems in the clinical aspects of atherosclerosis and hypertension
at the 11th session of the Institute of Therapy of the Academy of
Medical Sciences of the U.S.S.R. Kaz. med. zhur. no. 2:96-98
Mr-Ap ' 61 (MIRA 14:4)

(ARTERIOSCLEROSIS) (HYPERTENSION)

RYVKIN, I.A.; SUDAKOVA, S.A.

Activity of glutamic-oxalic transaminase in patients with active
rheumatic fever. Terap.arkh. 32 no.9:66-70 '60.

(MIRA 14:1)

1. Iz 1-y kafedry terapii (zav. - deystvitel'nyy chlen AMN SSSR
prof. M.S. Vovch [deceased]) Tsentral'nogo instituta usovershenst-
vovaniya vrachey i klinicheskogo otdeleniya (zav. - kand.med.nauk
S.M. Bremener) Instituta vitaminologii.

(RHEUMATIC FEVER) (TRANSAMINASE)

RYVKIN, I.A.; KALININA, N.V. (Moskva)

Scientific research on cardiovascular pathology in 1961-1962.
Klin.med. no.10:74-82 '61. (MIRA 14:10)

1. Iz Instituta terapii AMN SSSR (dir. - deystvitel'nyy chlen
AMN SSSR prof. A.L. Myasnikov).
(CARDIOVASCULAR SYSTEM--DISEASES)

MAKAROV, G.N.; KAZINIK, Ye.M.; POPCHENKO, R.A.; SEMENOV, A.S.; YERKIN, L.I.; RYVKIN, I.Yu.; PRIVALOV, V.Ye.; MUSTAFIN, F.A.; KUZNETSOV, P.V.; ZOROKHOVICH, G.Ya.

Coking of the coal charge in an oven with a rotating ring floor.
Koks i khim. no.11:34-41 '62. (MIRA 15:12)

1. Moskovskiy khimiko-tekhnologicheskii institut im. D.I. Mendeleeva (for Makarov, Kazinik, Popchenko, Semenov).
 2. Vostochnyy uglekhimicheskii institut (for Yerkina, Ryvkin, Privalov).
 3. Nizhne-Tagil'skiy metallurgicheskii kombinat (Mustafin, Kuznetsov, Zorokhovich).
- (Coke)

NEFEDOV, P.Ya.; CHERNOEROVKIN, V.P.; KATARIN, V.P.; ANAN'IN, A.A.;
BALBASHEV, V.K.; RYVKIN, I.Yu.; TSYNOVNIKOV, A.S.; KUZ'MIN, I.V.;
YAKOVLEV, S.Ye.; SHULAYEV, V.I.; MATSEVICH, S.I.; NARNITSKIY, A.P.;
BOKOV, O.K.; CHEREPANOV, V.Ye.

Coke briquets for cupola furances. Lit. proizv. no.3:6-7
Mr '65. (MIRA 18:6)

RYVKIN, Kh.I.

APPROVED FOR RELEASE: Thursday, September 26, 2002
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446510020-8
CIA-RDP86-00513R001446510020-8"

POLYAKOV, D.L., inzhener, redaktor; BATURIN, V.V., kandidat tekhnicheskikh nauk, redaktor; BORISOV, V.P., inzhener, redaktor; GOVOROV, V.P., inzhener, redaktor; MATS, Ya.M., inzhener, redaktor; RYVKIN, Kh.I., kandidat tekhnicheskikh nauk, redaktor; TURKUS, V.A., dotsent, redaktor; KORSAKOV, S.S., retsenzent; UFIMTSEV, G.N., retsenzent.

[Manual for planning heating and ventilation systems of industrial enterprises] Spravochnik po proektirovaniu otopleniia i ventilatsii promyshlennykh predpriatii. [Redkollegiia D.L. Poliakov i dr. Redaktor V.A. Turkus] Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1953- (MIRA 7:6)

1. Leningrad, Proyektnyy institut ministerstva stroitel'stva.
(Heating--Handbooks, manuals, etc.) (Ventilation--Handbooks, manuals, etc.)

ACC NR: AP7002994

(A, N)

SOURCE CODE: UR/0413/66/000/021/0095/0095

INVENTORS: Ryvkin, L. S.; Rodnikov, V. A.

ORG: none

TITLE: Accumulating fuel pump. Class 46, No. 189644

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 24, 1966, 95

TOPIC TAGS: pump, engine fuel pump, internal combustion engine

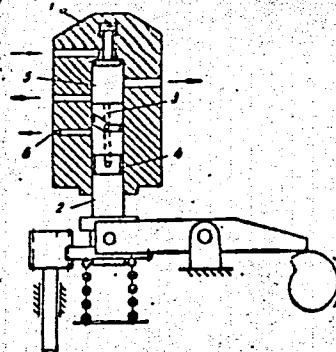
ABSTRACT: This Author Certificate presents an accumulating fuel pump for an internal combustion engine of, say, the free-piston type. The pump contains a casing which hold a bushing, a plunger, and a hydraulic damper (see Fig. 1). To improve its reliability and to simplify its construction, the damper is placed in the plunger couple and forms an axial drill hole in the plunger. This hole is connected to an annular groove on the cylindrical surface of the plunger and provides a flow duct for the fuel (after the cutoff) from the chamber above the piston through a nozzle in the bushing.

Card 1/2

UDC: 621.43.038.5--752.2

ACC NR: AP7002994

Fig. 1. 1 - bushing; 2 - plunger; 3 - axial
drill hole; 4 - annular groove;
5 - chamber above the piston;
6 - nozzle



Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 29Oct65

ACC NR: AP7004787 (A) SOURCE CODE: UR/0413/67/000/001/0113/0114

INVENTOR: Ryvkin, L. S.; Rodnikov, V. A.

ORG: None

TITLE: An accumulative fuel pump. Class 46, No. 190143

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1967, 113-114

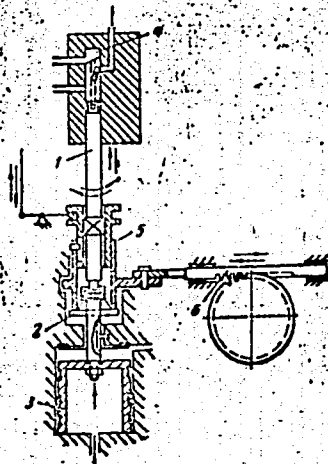
TOPIC TAGS: engine fuel pump, internal combustion engine component

ABSTRACT: This Author's Certificate introduces: 1. An accumulative fuel pump for internal combustion engines, e. g. free piston engines. The unit contains a housing holding a plunger pair. Reciprocating motion is imparted to the plunger by a mechanical transmission and an accumulator. In order to improve fuel delivery and simplify design of the pump, there is a cavity above the plunger which is filled with fuel during the suction stroke for stopping the plunger and setting the hydraulic thrust. 2. A modification of this pump with the plunger connected to a rotating unit which may be made in the form of a supply sleeve to turn the plunger about its axis for fuel delivery. 3. A modification of this pump in which the rotating device is equipped with any type of drive, e. g. hydraulic, gas or mechanical.

UDC: 621.43.038.5

Card 1/2

ACC NR: AP7004787



1—plunger pair; 2—mechanical drive; 3—accumulator; 4—cavity above the plunger;
5—rotating unit; 6—drive for the rotating unit

SUB CODE: ^{21/}~~21~~ SUBM DATE: 10May65

Card 2/2

L 20926-66 EWT(d)/EWT(1)/EWT(m)/EWP(f)/EPF(n)-2/T-2/ETC(m)-6 WW

ACC NR: AP6002578

(A)

SOURCE CODE: UR/0286/65/000/023/0071/0071

AUTHORS: Bulychev, F. V.; Borisoglebskiy, A. I.; Ryvkin, L. S.

40
B

ORG: none

TITLE: Fuel pump for free-piston diesel compressors. Class 46, No. 176751

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 71

TOPIC TAGS: engine fuel pump, compressor

ABSTRACT: This Author Certificate presents a fuel pump for free-piston diesel compressors with spring drive of the pump plunger. To simplify the design, a piston is mounted between the plunger and the spring. The space beneath the piston is connected through an automatic intake valve to the compressor cavity of the diesel compressor and through an exhaust valve to the atmosphere. For automatic injection control, a gas plunger is used. This plunger is connected to the diesel cavity of the diesel compressor and is coupled to the exhaust valve.

SUB CODE: 13, 21/ SUBM DATE: 20Jul62

Card 1/1 FW

ACC NR: AP5028550

SOURCE CODE: UR/0286/65/000/020/0163/0163

AUTHORS: Borisoglebskiy, A. I.; Bulychev, F. V.; Kreps, L. I.; Ryvkin, L. S.; Tsentsiper, M. L.

ORG: none

TITLE: Accumulating fuel pump. Class 46, No. 166199

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 163

TOPIC TAGS: engine fuel pump, engine fuel system, engine component, internal combustion engine

ABSTRACT: This Author Certificate presents an accumulating fuel pump for internal combustion engines (such as free piston engines). The pump contains a case with coaxially placed cartridges, each of which carries a plunger with curved dosing and conveying rims and a counterplunger connected to the piston of the accumulator. To lower the cost and improve the performance, the counterplunger is provided with an internal cutoff duct connecting the aperture between the plungers to the low pressure zone through a duct in the plunger. The plunger may also contain a duct for feeding fuel to the atomizer.

SUB CODE: 21/ SUBM DATE: 16Jun62

Card 1/1

UDC: 621.43.038.5

SA

A 548

89. **Brittleness of Liquids.** M. KORNFIELD AND M. RYVKIN. *J. of Exp. and Theor. Phys. U.S.S.R.*, 9, 5, pp. 895-898, 1939. *In Russian.*—It was found that for velocities of impulsive deformation of about 20 m./sec. a liquid of viscosity 5×10^5 poise suffers brittle disruption. Results for velocities of 300 m./sec. are also described. The nature of the disruption was observed photographically. D. S.

ASD-SEA METALLURGICAL LITERATURE CLASSIFICATION

0-2757-12-27

THE UNIVERSITY OF CHICAGO

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

RYVKIN, M.L.

Stratigraphy of Lower Devonian sediments in the Turkestan-Alay
mountain system (Sokh-Isfayram interfluve). Trudy Uz. geol. upr.
no.2:20-21 '62. (MIRA 16:8)
(Tien Shan--Geology, Stratigraphic)

CHEKHOVICH, V.D.; SOLOV'YEVA, M.N.; ZHELEZNOV, V.M.; RYVKIN, M.I.;
STARODUBTSEVA, A.S.; STUKOVA, K.V.; URMANOV, Kh.Kh.

New data on the Devonian of Kyzyl-Kum. Dokl.AN SSSR 107 no.1:
149-150 Mr '56. (MIRA 9:7)

1. Uzbekskoye geologicheskoye upravleniye. Predstavleno akademikom
D.V.Nalivkinym.
(Kyzyl-Kum--Geology, Stratigraphic)

RYVKIN, Mikhail Osipovich; DEMENT'YEV, Sergey Ivanovich;
PLESHKOV, Leonid Yefimovich [deceased]; GOKHBOM,
Yevgeniy Naumovich; RABKIN, Yu.I., red.

[Transportation in metallurgical plants] Transport na
metallurgicheskikh zavodakh. Moskva, Metallurgiya, 1964.
412 p. (MIRA 17:12)

RYVKIN, Mikhail Osipovich; DLUGACH, B.A., red.; LANOVSKAYA, M.R., red.
izd-va; KARASEV, A.I., tekhn.red.

[Railroad transportation in iron and steel plants] Zhelezno-
dorozhnyi transport na zavodakh chernoi metallurgii. Izd.2.,
ispr. i dop. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi
i tsvetnoi metallurgii, 1960. 294 p. (MIRA 13:12)
(Railroads, Industrial) (Steel industry)
(Iron industry)

KHAR'KOV, A.A., dots., otv. red.; RYVKIN, M.S., dots., red.;
MERZLYAKOVA, Z.S., st. prepod., red.; PARSHUKOV, B.V.,
st. prepod., red.; TAUBER, A.I., st. prepod., red.

[Abstracts of reports of the Zonal Scientific and technological Conference of Teachers of Physics, Methodology of Physics, and General Technical Subjects in the Pedagogical Institutes of Siberia and the Ural Mountain Region]
Tezisy dokladov Zonal'noy nauchno-tekhnicheskoy konferentsii
prepodavatelei fiziki, metodiki fiziki i obshchetekhnicheskikh
distsiplin pedagogicheskikh institutov Sibiri i Urala. Novo-
sibirsk, Novosibirskii gos. pedagog. in-t, 1962. 167 p.

(MIRA 16:11)

1. Zonal'naya nauchno-tekhnicheskaya konferentsiya prepodavateley fiziki, metodiki fiziki i obshchetekhnicheskikh distsiplin pedagogicheskikh institutov Sibiri i Urala. 5th, 1962.

(Physics—Study and teaching)

(Technical education)

PHASE I BOOK EXPLOITATION

SOV/4770

Rumer, Yuriy Borisovich, and M.S. Ryvkin

Teoriya otноситel'nosti (The Theory of Relativity) Moscow, Uchpedgiz, 1960.
211 p. 20,000 copies printed.

Eds.: A.A. Gobanov, and Yu. N. Drozhzhin; Tech. Ed.: V.I. Korneyeva.

PURPOSE: This book is intended for students of pedagogical institutes, teachers of physics in secondary schools, and for general readers interested in modern physics.

COVERAGE: The authors discuss the fundamentals of the theory of relativity, and of its most important applications (quantum theory of light, some problems of the theory of accelerators, energetics of nuclear reactions, etc.) The contents of the book correspond basically to the program of the course of theoretical physics at pedagogical institutes, except for the problems discussed in Ch. IV (The Theory of the Field) which transcend the requirements of that course. No personalities are mentioned. There are no references.

Card 1/3

POKROVSKIY, V.L.; RYVKIN, M.S.

Effect of anisotropy on threshold phenomena in superconductors. Zhur. eksp. i teor. fiz. 40 no. 6: 1859-1865 Je '61. (MIRA 14:8)

1. Institut radiofiziki i elektroniki Sibirskogo otdeleniya AN SSSR i Novosibirskiy pedagogicheskiy institut.

(Superconductivity)
(Ultrasonic waves)
(Electromagnetic waves)

S/056/62/043/001/015/056
B125/B102

24.2/20
AUTHORS:

Pokrovskiy, V. L., Ryvkin, M. S.

TITLE:

Thermodynamics of anisotropic superconductors

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
no. 1(7), 1962, 92-104

TEXT: In the low-temperature region, V. L. Pokrovskiy's theory of anisotropic superconductors (ZhETF, 40, 641, 1961) is usually in good agreement with experimental results. No such agreement is found at temperatures close to the critical temperature T_{crit} . For example, the inequalities $\Delta C/C_n(T_{crit})$ for the discontinuity of the specific heat at T_{crit} and the universal inequality $(1.4C_n(T_{crit})/\Delta C - 1)/2 \geq \ln(0.94\chi)$ near T_{crit} are no longer valid for many elements. Coulomb interaction of electrons and the possible formation of Cooper pairs in asymmetric states do not change the results of the "anisotropic" theory, especially not the universal relations. The contribution of higher approximations is always

Card 1/2

✓B

Thermodynamics of anisotropic ...

S/056/62/043/001/015/056
B125/B102

small when T and T_{crit} differ only slightly and increases $Q(0)$ by $\sim ga^2$
(g = coupling constant, a = anisotropy constant) when $T \ll T_{\text{crit}}$. The
discrepancy between theory and experiment at temperatures close to
 T_{crit} is probably due to the fact that near T_{crit} the quasi-particle con-
cept is not applicable. There are 2 tables. ✓B

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya
Akademii nauk SSSR (Institute of Radiophysics and
Electronics of the Siberian Department of the Academy of
Sciences USSR)

SUBMITTED: November 23, 1961 (initially),
March 15, 1962 (after revision)

RYVKIN, M.S.

Methodology of the presentation of certain parts of dynamics in
a physics course. Uch. zap. Novosib. gos. ped. inst. no.18:93-
105 '63. (MIRA 17:10)

RUMER, Yu.B.; RYVKIN, M.S.; GOBANOV, A.A., red.; DROZHZHIN, Yu.N.,
red.; KORNEYEVA, V.I., tekhn.red.

[Theory of relativity] Teoriia otnositel'nosti. Moskva, Gos.
uchebno-pedagog.izd-vo M-va prosv.RSFSR, 1960. 211 p.

(MIRA 13:7)

(Relativity (Physics))

25205

S/056/61/040/006/026/031
B125/B202

24,2140

AUTHORS: Pokrovskiy, V. L., Ryvkin, M. S.

TITLE: Influence of anisotropy on threshold phenomena in
superconductors

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40,
no. 6, 1961, 1859-1864

TEXT: The authors studied absorption of ultrasonics and electromagnetic waves in anisotropic superconductors at 0°K near the threshold frequency ($\omega \sim 10^{11}$ to 10^{12} sec^{-1}). They demonstrate that the threshold frequency depends on the propagation direction of the waves. The excitation of sound oscillations in a strongly non-isothermal plasma without magnetic field has been studied by G. V. Gordeyev, ZhETF, 27, 19, 24, 1954. The laws of conservation of energy and momentum in the absorption of a phonon (or photon) connected with the decay of a Cooper pair reads as follows (notations by V. L. Pokrovskiy (ZhETF, 40, 898, 1961)):

$$\bar{Q}(\vec{p}, \vec{q}) = \varepsilon_{\vec{p}} + \varepsilon_{\vec{p}-\vec{q}} = \sqrt{\left\{ \frac{2}{p} + \Delta^2 \right\}} + \sqrt{\left\{ \left(\frac{1}{p} - \frac{1}{q} \right)^2 + \Delta^2 \right\}} \quad (1)$$

Card 1/7

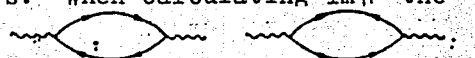
25205

S/056/61/040/006/026/031

B125/B202

Influence of anisotropy on ...

The anisotropy of a superconductor changes the frequency dependence of absorption for the following two reasons: 1) in the anisotropic superconductors the minimum of the left-hand side of (1) is attained at certain points of the Fermi surface. 2) In the electromagnetic case the decay probability strongly increases with a decrease in the region of the allowed pair decay. Absorption of ultrasonics is calculated by using graphs. For calculating the absorption it is sufficient to calculate the imaginary part of the polarization operator $\Pi(\vec{q}, \omega)$ in the weak-coupling approximation. The results thus obtained qualitatively also hold for the strong coupling in superconductors. When calculating $\text{Im}\Pi$ the following two graphs must be considered



$$\text{Then } \text{Im}\Pi(\vec{q}, \omega) \sim \int d^3p \left[u^2 v'^2 + \frac{\Delta \Delta'}{4ee'} \right] g^2 g'^2 \delta(e + e' - \omega), \quad (2)$$

holds up to numerical factors. The dimensionless function $g = g(\vec{p})$ characterizes the anisotropy of the electron-phonon interaction. With $q \ll p_0$, $\Delta \sim \Delta'$, $g' \sim g$ holds from which in turn

$$\text{Im}\Pi(\vec{q}, \omega) \sim \iint g^4 \frac{\sin \theta d\theta d\varphi}{Kv} \int_{-\infty}^{\infty} d\xi \left[\left(1 + \frac{\xi}{e}\right) \left(1 - \frac{\xi'}{e'}\right) + \frac{\Delta^2}{ee'} \right] \delta(e + e' - \omega) \quad (4)$$

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S/056/61/040/006/026/031
 B125/B202

Influence of anisotropy on ...

follows, where $K(\theta, \varphi)$ is the Gauss' curvature of the Fermi surface.

$$\text{Im } \Pi(q, \omega) \sim \iint \frac{\sin \theta d\theta d\varphi}{Kv} g^4 \frac{(\xi_1 + e_1)(\xi_2 + e_2) + \Delta^2}{\xi_1 e_2 - \xi_2 e_1} \quad (9)$$

is obtained after integration over ξ . Near the threshold $\omega^2 = \Omega^2(1+\alpha)$, $\alpha \ll 1$ (15) can be written. In approximation to the terms $\sim \alpha^{1/2}$ $\text{Im } \Pi$

$$= A c(\omega - \Omega_0)^{1/2} / v_0, A \sim \epsilon_0^4 / K_0 v_0 \Omega_0^{1/2} \quad (17) \text{ holds. } \alpha_s(\vec{n}) = \gamma(\vec{n}) \omega \text{Im } \Pi \quad (18)$$

holds for the attenuation of ultrasonics where $\gamma(\vec{n})$ is a certain experimentally not measurable function of direction. For this reason

$\alpha_s(\vec{n}) = B(\vec{n}) c(\omega - \Omega_0)^{1/2} v_0$, $B(\vec{n}) = \gamma(\vec{n}) A \Omega_0$ (19) holds near the threshold value. In the isotropic case the minimum of $\Omega^2(\theta, \varphi)$ is attained on the whole line $\theta = \pi/2$. The absorption of the electromagnetic waves is determined by the imaginary part of the polarization tensor: $\Pi_{\alpha\beta}$. If the above graphs are considered only

$$\text{Im } \Pi_{\alpha\beta} \sim \int d^3 p v_\alpha v_\beta \left[u^2 v'^2 + v^2 u'^2 - \frac{\Delta \Delta'}{2\epsilon\epsilon'} \right] \delta(\epsilon + \epsilon' - \omega). \quad (20)$$

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S/056/61/040/006/026/031
 B125/B202

Influence of anisotropy on ...

holds up to numerical factors. In the following

$$\text{Im } \Pi_{\alpha\beta} \sim \iint \frac{\sin \theta d\theta d\varphi}{Kv} v_{\alpha} v_{\beta} \frac{e_1 e_2 + \xi_1 \xi_2 - \Delta^2}{\xi_1 e_2 - \xi_2 e_1}. \quad (23)$$

is obtained. The integral (23) depends mainly on the type of the metal.

$$\text{Im } \Pi_{\alpha\beta} \sim \frac{v_{\alpha 0} v_{\beta 0}}{K_0 v_0} \frac{\Delta_0}{v_0 q} \left[\alpha^{1/2} + 3a_1^2 \left(\frac{\Delta_0}{v_0 q} \right)^2 \alpha^{1/2} \right], \quad (26)$$

where $v_{\alpha 0}$, $v_{\beta 0}$ hold for a Pippard metal up to the lowermost powers of α and $\Delta_0/v_0 q$. Thus, two frequency ranges which are close to the threshold range exist in a Pippard metal: 1) with $\alpha \gg (\Delta_0/v_0 q)^2$

$$\text{Im } \Pi_{\alpha\beta} = A_1 (\Delta_0/v_0 q) (\omega - \Omega_0)^{1/2}, \quad A_1 \sim v_{\alpha 0} v_{\beta 0} / K_0 v_0 \Omega_0^{1/2}. \quad (27)$$

holds and with $\alpha \ll (\Delta_0/v_0 q)^2$

$$\text{Im } \Pi_{\alpha\beta} = A_2 (\Delta_0/v_0 q)^2 (\omega - \Omega_0)^{1/2}, \quad A_2 = 3A_1 a_1^2 \Omega_0. \quad (28)$$

holds. In the range 1 absorption is reduced by anisotropy, in range 2, however, it is increased. Due to the averaging in (26) the additional small factor $\sqrt{\alpha}$ occurs. In the corresponding experiments the

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experimentally measurable absorption must be $\sim \alpha^2$. b) With the London metal ($vq \ll \Delta$) the minimum point $\Omega^2(x, \varphi)$ exactly agrees with the point of the absolute minimum of the energy gap $\Delta(x, \varphi)$. Then

$$\omega^2 - \Omega^2(x, \varphi) = 4\Delta_m^2 [\alpha - a_2(x - x_0)^2 - b_2(\varphi - \varphi_0)^2] \geq 0 \quad \text{and} \quad \text{Im} \Pi_{\alpha\beta} \sim \frac{v_\alpha v_\beta}{K_0 v_0} \left(\frac{v_0 q}{2\Delta_m} \right)^2 x_0^2 \alpha^{1/2}. \quad (30)$$

hold near the threshold. No additional small factors are obtained by averaging over the directions. In the experimentally most interesting case of the intermediary metal ($vq \sim \Delta$), $\Omega^2(x, \varphi)$ has a minimum at a certain point which is not on the line $x = 0$ and which does not agree with the minimum point of $\Delta(x, \varphi)$. In this case absorption near the threshold changes proportionally to $x_0^2 \alpha^{1/2}$, the factor $(v_0 q / 2\Delta_m)^2$ occurring in the formula for $\text{Im} \Pi_{\alpha\beta}$ instead of $(v_0 q / 2\Delta_m)^2$ in (30), however, is not small. A relatively small factor $\sqrt{\alpha}$ is obtained for the intermediary metals by averaging over the directions. The absorption in polycrystalline specimens of the intermediary metals is $\omega - 2\Delta_m$. The qualitative results in

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an isotropic model and in an anisotropic model with averaging are in agreement only with intermediary superconductors. At present no experiments have been made concerning the absorption of ultrasonics in the threshold range. The experimental points which are obtained from a single experiment concerning the frequency dependence of the absorption of electromagnetic waves near the threshold value (P. L. Richards and M. Tinkham, Phys. Rev., 119, 575, 1960) are not sufficient for comparison with theoretical data. The threshold frequencies of In, Hg, Pb measured by these authors were higher than those predicted by the theory of isotropy ($\Omega_0 = 3.5 kT_c$). Exact experiments in the range near the threshold, with Pippard metals and single crystals are necessary. V. L. Pokrovskiy and V. A. Toponogov (ZhETF, 40, 1112, 1961) developed a method of determining the energy gap as a function of direction. The authors thank L. P. Gor'kov for his interest. There are 2 figures and 8 references: 5 Soviet-bloc and 3 non-Soviet-bloc. The two most recent references to English-language publications read as follows: D. C. Mattis, J. Bardeen, Phys. Rev., 111, 412, 1958. P.L. Richards, M. Tinkham. Phys. Rev., 119, 575, 1960.

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Influence of anisotropy on ...

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S/056/61/040/006/026/031
B125/B202

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Radio Physics and Electronics of the Siberian Department of the Academy of Sciences of the USSR). Novosibirskiy pedagogicheskiy institut (Novosibirsk Pedagogical Institute)

SUBMITTED: January 26, 1961

Card 7/7

POKROVSKIY, V.D.; RYVKIN, M.S.

Threshold absorption of infrared waves in superconductors.
Zhur. eksp. i teor. fiz. 43 no.3:900-905 '62. (MIRA 15:10)

1. Institut radiofiziki elektroniki Sibirskogo otdeleniya
AN SSSR.
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RYVKIN, V. O.

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ZEYLIDZON, Ye.D., inzhener; ALEKSANDROV, I.N., inzhener; DERYUGIN, F.F., inzhener;
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inzhener; RAKOVICH, A.M., inzhener.

Simplification of relay protection. Elek.sta. 27 no.2:40-48 P '56.
(MLRA 9:6)

1. Tekhnicheskoye upravleniye Ministerstva elektrostansii (for Zaylidzon)
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4. Lenenergo (for Galaktionov, Rybkin). 5. L'vovskiy enrgokombinat (for Kucheruk, Rakovich).

(Electric relays)

RYVKIN, P.; GAYEVSKIY, O., master sporta

At the start of the Spartakiada. Kryl. rod. 16 no.8:11 Ag '65.
(MIRA 18:8)

1. Nachal'nik Moskovskogo aviamodel'nogo kluba (for Ryvkin).

RYVKIN, P.; KUMAHIN, V., master sporta.

**What prevents model airplane builders from developing their skill?
A letter to the editor. Kryl. rod. 8 no.2:17 F '57. (MLRA 10:4)**

**1. Nachal'nik Moskovskoy gorodskoy aviamodel'noy laboratorii (for
Ryvkin). (Airplanes--Models)**

RYVKIN, P.

Young champions of the capital. Kryl. rod. 14 no.8:41 Ag '63.
(MIRA 16:8)

1. Nachal'nik Moskovskogo aviamodel'nogo kluba.
(Airplanes—Models)

RYVKIN, P.

Masters of sports are helping young airplane model builders. Kryn.
rod. 11 no.2:5 F '60. (MIRA 13:6)

1. Nachal'nik Moskovskogo gorodskogo aviamodel'nogo kluba.
(Moscow--Airplanes--Models)

RYVKIN, P.

Three decades to airplane modeling. Kryl. rod. 16 no.1:11
Ja '65. (MIRA 18:3)

1. Nachal'nik Moskovskogo aviamodel'nogo kluba.

ANTONOV, B. (Tashkent); RYVKIN, P.; KHODKEVICH, E., starshiy inzhener;
ABRANIN, V., inzhener-mekhanik; UKOLOV, N., metodist;
LYAKHOVETSKIY, M.

Facts, events, people. Kryl.rod. 13 no.4:22-23 Ap '62.
(MIRA 15:5)

1. Nachal'nik Moskovskogo aviamodel'nogo kluba
Dobrovol'nogo obshchestva sodeystviya armii, aviatsii i
flotu (for Ryvkin). 2. Moskovskaya oblastnaya stantsiya
yunykh tekhnikov (for Ukolov).
(Aeronautics)

AID P - 5518

Subject : USSR/Aeronautics - Model building

Card 1/1 Pub. 58 - 9/17

Authors : Ryvkin, P., Head of the City of Moscow Model-building
Laboratory, V. Kumanin, Master of Sports.

Title : What hinders the model-builders from developing their
skills?

Periodical : Kryl. rod., 2, 17, F 1957

Abstract : An analysis of the causes of the Soviet model-building
sportsmen lacking creative spirit in their approach to
the problems of their sport. The necessity is stressed
of a more systematic training of sportsmen interested in
model-building.

Institution : None

Submitted : No date

RYVKIN, P.

Walter Pochepaev contest winner. Kryn.rod. 11 no.8:7 Ag '60.

1. Nachal'nik Moskovskogo gorodskogo aviamodel'nogo kluba.
(MIRA 13:8)
(Airplanes--Models)

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510020-8"
KUMANIN, V.; RYVKIN, P.; KHODKEVICH, E.; SOKOLOV, Yu.; KOSTENKO, I.;
KUPFER, M.; VASIL'YEV, A.; POSTNIKOV, Yu.; TARAKANOV, A.

More attention to plane modelina as a sport; letter to the editor.
Kryl.rod. 5 no.12:16 D '54. (MLRA 7:12)
(Airplanes--Models)

APPROVED FOR RELEASE: Thursday, September 26, 2002

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ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1470000 *A

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1470000 *A

1470000 *A

1470000 *A

1470000 *A

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RYVKIN: "APPROVED FOR RELEASE: Thursday, September 26, 2002 : CIA-RDP86-00513R001446510020-8
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Inst imeni I. V. Stalin, 8 May 47.

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Ore Dressing

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V.I.; BLYUMENBERG, V.V.; BOMCH-BRUYEVICH, M.D.; BORMOTOV, A.D.;
BULGAKOV, N.I.; VEKSLER, B.A.; GAVRILENKO, I.V.; GENDLER, Ye.S.,
[deceased]; GERLIVANOV, N.A., [deceased]; GIBSHMAN, Ye.Ye.;
GOLDOVSKIY, Ye.M.; GORBUNOV, P.P.; GORYAINOV, P.A.; GRIMBERG, B.G.;
GRYUNER, V.S.; DANOVSKIY, N.F.; DZEVUL'SKIY, V.M., [deceased];
DREMAYLO, P.G.; DYBETS, S.G.; D'YACHENKO, P.F.; DYURNBAUM, N.S.,
[deceased]; YEGORCHENKO, B.F., [deceased]; YEL'YASHKEVICH, S.A.;
ZHEREBOV, L.P.; ZAVEL'SKIY, A.S.; ZAVEL'SKIY, F.S.; IVANOVSKIY,
S.R.; ITKIN, I.M.; KAZHDAN, A.Ya.; KAZHINSKIY, B.B.; KAPLINSKIY, S.V.;
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I.F.; KOLOSOV, V.A.; KOMAROV, N.S.; KOTOV, B.I.; LINDE, V.V.;
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NYDEL'MAN, G.E.; PAVLYSHKOV, L.S.; POLUYANOV, V.A.; POLYAKOV, Ye.S.;
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STEPANOV, Yu.A.; TARASOV, L.Ya.; TOKAREV, L.I.; USPASSKIY, P.P.;
FEDOROV, A.V.; FERRE, N.E.; FRENKEL', N.Z.; KHEYFETS, S.Ya.; KHLOPIN,
M.I.; KHODOT, V.V.; SHAMSHUR, V.I.; SHAPIRO, A.Ye.; SHATSOV, M.I.;
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SHTERLING, S.Z.; SHUTYY, L.R.; SHUKHAL'TER, L. Ya.; ERVAYS, A.V.;

(Continued on next card)

ANDREYEV, A.B. (continued) Card 2.

YAKOVLEV, A.V.; ANDREYEV, Ye.S., retsenzent, redaktor; BERKEM-
GIM, B.M., retsenzent, redaktor; BERMAN, L.D., retsenzent, redaktor;
BOLTINSKIY, V.N., retsenzent, redaktor; BONCH-BRUYEVICH, V.L.,
retsenzent, redaktor; VELLER, M.A., retsenzent, redaktor; VINOGRADOV,
A.V., retsenzent, redaktor; GUDTSOV, N.T., retsenzent, redaktor;
DEGTIAREV, I.L., retsenzent, redaktor; DEM'YANYUK, F.S., retsenzent;
redaktor; DOBROSMYSLOV, I.N., retsenzent, redaktor; YELANCHIK, G.M.
retsenzent, redaktor; ZHEMOCHKIN, D.N., retsenzent, redaktor;
SHURAVCHENKO, A.N., retsenzent, redaktor; ZLODEYEV, G.A., retsenzent,
redaktor; KAPLUNOV, R.P., retsenzent, redaktor; KUSAKOV, M.M.,
retsenzent, redaktor; LEVINSON, L.Ye., [deceased] retsenzent, redaktor;
MALOV, N.N., retsenzent, redaktor; MARKUS, V.A. retsenzent, redaktor;
METELITSYN, I.I., retsenzent, redaktor; MIKHAYLOV, S.M., retsenzent;
redaktor; OLIVETSKIY, B.A., retsenzent, redaktor; PAVLOV, B.A.,
retsenzent, redaktor; PANYUKOV, M.P., retsenzent, redaktor; PLAKSIN,
I.N., retsenzent, redaktor; RAKOV, K.A. retsenzent, redaktor;
RZHAVINSKIY, V.V., retsenzent, redaktor; RINBERG, A.M., retsenzent;
redaktor; ROGOVIN, N. Ye., retsenzent, redaktor; RUDENKO, K.G.,
retsenzent, redaktor; RUTOVSKIY, B.N., [deceased] retsenzent,
redaktor; RYZHOV, P.A., retsenzent, redaktor; SANDOMIRSKIY, V.B.,
retsenzent, redaktor; SKRAMTAYEV, B.G., retsenzent, redaktor;
SOKOV, V.S., retsenzent, redaktor; SOKOLOV, N.S., retsenzent,
redaktor; SPIVAKOVSKIY, A.O., retsenzent, redaktor; STRAMENTOV, A.Ye.,
retsenzent, redaktor; STRELETSKIY, N.S., retsenzent, redaktor;

(Continued on next card)

ANDREYEV, A.V., (continued) Card 3.

TRET'YAKOV, A.P., retsenzent, redaktor; FAYKMAN, Ye.M., retsenzent, redaktor; KHACHATYROV, T.S., retsenzent, redaktor; CHERNOV, H.V., retsenzent, redaktor; SHERGIN, A.P., retsenzent, redaktor; SHESTOPAL, V.M., retsenzent, redaktor; SHESHKO, Ye.F., retsenzent, redaktor; SHCHAPOV, N.M., retsenzent, redaktor; YAKOBSON, M.O., retsenzent, redaktor; STEPANOV, Yu.A., Professor, redaktor; DEM'YANYUK, F.S., professor, redaktor; ZNAMENSKIY, A.A., inzhener, redaktor; PLAKSIN, I.N., redaktor; RUTOVSKIY, B.N. [deceased] doktor khimicheskikh nauk, professor, redaktor; SHUKHGAL'TER, L. Ya, kandidat tekhnicheskikh nauk, dotsent, redaktor; BRESTINA, B.S., redaktor; ZNAMENSKIY, A.A., redaktor.

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RYVKIN, S.; KONOVALENKO, B.

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(Labor and laboring classes) (Unemployed)

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retsenzent; DOROSHCHUK, V.Ye., retsenzent; LEL'CHUK, V.L.,
retsenzent; PIROGOV, M.S., retsenzent; RYVKIN, S.A., retsenzent;
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2A

Photoelectric properties of indium selenide and selenide.
B. T. Kotomiet and S. M. Ryzhki. *Zhur. Tekh. Fis.* 17, 987-92 (1947). —The spectral curve of the photocond. of InSe, prepd. by fusion *in vacuo*, in the form of a compact plate, has a max. in the infrared, at about 1.0μ . Evapd. films on glass show photocond. only after thermal treatment, and then there is also a max. in the infrared, e.g. at 1.1μ . InSe and In₂Se₃ show only very slight photocond. No photocond. could be detd. for compact plates of InS, owing to exptl. difficulties. Films showed no photocond. even after thermal treatment, although their dark cond. was higher than that of the compact material. Treatment of a film of InSe in Se vapor at 300-300° for as short a time as 10 min. resulted in a shift of the max. of sensitivity to the visible, 500 mμ. The whole spectral curve of the photocond. of Se-treated InSe, including the position and the height of the max., is very similar to that of pure Se. That this is not simply the result of the formation of a superficial layer of pure Se, but is linked with a change extending throughout the whole depth of the specimen, is demonstrated by the fact that the effect is the same whether the light falls on the side previously exposed to Se vapor or on the other side. The Se-vapor treatment also renders InSe more nearly transparent, and changes its absorption spectrum. The max. at 500 mμ persists even if the sample is heated to 300°, at which temp. a superficial film of Se would be removed. InS, which shows no photocond. in compact plates, becomes photoconducting after treatment with S vapor, with a max. at 420 mμ, as compared with 470-80 mμ for pure S. Treatment of InSe with S gives the same spectral distribution as InS + S, and treatment of InS with Se, the same curve as InSe + Se. Interpretation of these phenomena is uncertain.

N. Thon

CA

Temperature dependence of photoconductivity in cuprous oxide. V. P. Zhurav and S. M. Ryvkin (Leningrad Phys. Tech. Inst.). *Doklady Akad. Nauk S.S.R.* 58, 1629-1631 (1947).—Cu₂O illuminated with square-wave type of light impulses gives the same shape of photocond. curve as the imposed light intensity function at room temp., i.e. no noticeable inertia exists. As temp. is dropped the value of photocond. rises rapidly and the curve assumes an approach to a triangular sawtooth shape. For the material used the value of the time const. τ is 1.3×10^{-4} sec. at room temp., while at -70° it is 0.044 sec. and at -105° it is 0.4 sec.
G. M. Kholapoff

USSR/Physics

Condensers, Semi-
Photoconductivity

Dec 48

"Condenser Method for Studying Photoelectric Dynamic
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"Zhur Tekh Fiz" Vol XVIII, No 12

Presents an approximation theory for the condenser
method of studying the photoelectric properties of
semiconductors. Shows that under some of the con-
ditions observed, this method can be utilized for
studying the actual photoelectric dynamic forces
during the period of existence and the value of

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USSR/Physics (Contd)

Dec 48

the photocurrent carrier. Gives results of some
experiments. Submitted 26 Jul 48.

RYVKIN, S. M.

19/497106

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RYVKIN, S. M.

"Excluding the Effect of the Contact Field in Photoelectromotive Force," Zhur.
Tekh.Fiz., 19, No.2, 1949

Leningrad Physico-Tech.Inst., Dept. Physico-Math. Sci., AS USSR

CA

Complex investigation of the photoconductivity of cuprous oxide. S. M. Ryvkin (Leningrad Phys. Tech. Inst.). *Doklady Akad. Nauk S.S.S.R.* 68, 487-90(1949); cf. *C.A.* 44, 7849a. —The stationary photocond. $\Delta\sigma$, attained after prolonged illumination, can be represented as a product $\Delta\sigma = e n k \beta I$ of e = electron charge, n = mobility of the current carriers, τ = their mean life, k = absorption coeff., I = light intensity (quanta/sec.), β = quantum yield. The magnitude k drops out for samples of sufficient thickness $d \gg 1/k$, with a linear recombination law, and in illumination perpendicular to the elec. field; under these conditions $\Delta\sigma = L e n \tau \beta I$, where the const. L depends on the dimensions of the sample. In Cu_2O , the temp. dependence of n is slight, and the temp. dependence of the photocond. is mainly detd. by τ and β . The method of rectangular illumination impulses (*Ibid.* 58, 1629(1947)) with equal periods of light and darkness permits simultaneous detn. of $\Delta\sigma$, τ , and β . The instantaneous photocond. $\Delta\sigma = \Delta\sigma_0 \tanh(t_1/2\tau)$, where t_1 = duration of an impulse, or $\Delta\sigma = \Delta\sigma_0 \tanh(1/f, \tau f)$, where f = frequency of the intermittent illumination. Condition of the measurement of $\Delta\sigma_0$ is $t_1 \gg \tau$, hence $\tanh(t_1/2\tau) \rightarrow 1$, and then the measured

$\Delta\sigma \rightarrow \Delta\sigma_0$. For the measurement of β it is necessary to suppress recombination; this can be approximated by staying at the initial stage of the illumination, i.e. by choosing periods of illumination t short as compared with τ , sep'd. by dark periods t_d long relative to τ . Under these conditions, $\Delta\sigma = \text{const. } n \beta$. The same result is obtained with $t = t_d \ll \tau$. In exptl. detns. on Cu_2O , τ was found to increase rapidly, and β to decrease with decreasing temp. On the log scale, $\log \sigma$ (dark cond.) and $\log \beta$, as functions of $1/T$, are represented by straight lines (except for the initial portion of $\log \beta$) nearly parallel to each other. The slopes of $\log \sigma$, $\log \beta$, and $\log \tau$, are very nearly equal for the same sample. Extrapolated to room temp., τ for various samples of Cu_2O varied between 1.3×10^{-4} and 5×10^{-4} sec. The temp. variation of τ is represented by $e^{E/RT}$, with E coinciding with the dis-ocn. energy in the temp. dependence of σ . Below 40° , β varies according to the same exponential law, with the same E ; at higher temps., the temp. dependence of β becomes slower and finally disappears. In the high-temp. region, $\Delta\sigma_0$ increases with the temp. mostly along the same $e^{E/RT}$ exponential; in the low-temp. range, $\Delta\sigma_0$ varies only slightly.

N. Thon

1957

The mechanism of photoconductivity of cuprous oxide.
V. P. Zhuze and S. M. Ryvkin. (Acad. Sci., U.S.S.R.,
Leningrad). *Doklady Akad. Nauk S.S.S.R.* 68, 673-6
(1979); cf. *ibid.* 487.—The thermal dependence of dark
cond., stationary photocond., lifetime of the photoelec.
carrier, and the coeff. of the quantum yield for the inner
photoelec. effect are explained in terms of a "hole" pic-
ture. It is assumed that light excites electrons not from
the lower band but from the impurity levels, and these
electrons rapidly fall back into the trapping levels. Equa-
tions of balance are set up for the electrons in the impurity
and trapping levels and the holes in the lower band. On
illumination, the no. of holes is increased. The differen-
tial equation is solved for this no. and the result is used
to calc. the total no. of carriers created by light in the
sample. The resulting equation for the photocond. agrees
with expt. if it is assumed that the recombination coeff.
for holes plus electrons in impurity levels is much greater
than the recombination coeff. for holes plus electrons in
the trapping levels.

M. J. Sienko

RYVKIN, S. M.

USSR/Physics - Photoconductivity
Conductors, Semi-

Feb 50

"Complex Investigation of Photoconductivity.
I. Setting Up the Problem and the Method of
Investigation," S. M. Ryvkin, Leningrad Phys-
icotech Inst, Acad Sci USSR, 13 pp

"Zhur Eksper 1 Teoret Fiz" Vol XX, No 2

Photoconductivity can be represented as a ser-
ies product of independent parameters. Com-
plete study is possible only for individual
studies of all parameters and exclusion of sec-
ondary phenomena. Square light pulses permit

156T96

USSR/Physics - Photoconductivity
(Contd)

Feb 50

Instantaneous study of stationary photoconduc-
tivity, life span of carriers, and quantum
yield of internal photoeffect in semiconduc-
tors. Submitted 8 Aug 49.

156T96

RYVKIN

APPROVED FOR RELEASE: Thursday, September 26, 2002

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517.312.5

1840. Fundamental investigation of photoconduc-
tivity. II. Photoconductivity of cuprous oxide.
V. P. ZIL'BER AND S. M. RYVKIN. *J. Exp. Theor.*
Phys., USSR, 20, 152-65 (Feb., 1950) In Russian.

Temperature variation has been investigated of:
stationary photoconductivity, life period of the
photocurrent carriers, and the quantum yield of the
internal photoeffect of Cu_2O . It has been found that
there exists an exponential law between the quantum
yield β (also life period τ) and the reciprocal tempera-
ture; a relationship has also been found between the
dark conductivity σ and photoconductivity. A theo-
retical explanation of these relationships has been
suggested, based on the assumption that the photo-
conductivity of Cu_2O is due to "admixture."

P. LACHMAN

METALLURGICAL LITERATURE CLASSIFICATION

CA

Measurement of the quantum efficiency of the inner photoeffect in cuprous oxide. S. M. Ryvkin (Leningrad Phys.-Tech. Inst.). *Doklady Akad. Nauk S.S.S.R.* 72, 481-4 (1959).—The quantum efficiency δ is detd. from the relation, valid for a linear photoconductor, $\Delta\sigma = k\mu\delta I_0/l$, where $\Delta\sigma$ = the stationary elec. photocurrent car. resp. the mobility and the life of the photocurrent carriers, I_0 the no. of quanta per sec. on unit area, k and l the dimensions of the sample; with $I_0 = J/k$, where J = the total light per sec. over the whole exposed area. The stationary $\Delta\sigma$ was detd. as described previously (Zhuzhe and R., *ibid.* 58, 1829 (1947)), r by the procedure of Tolstol and Feofilov (*ibid.* 58, 389 (1947)); 66, 365 (1949), μ from the dark cond. and the Hall const. Measurements in $\lambda = 0.63 \mu$, at room temp., gave δ of the order of 1%, falling with increasing temp. to 0.0005% at 120°. The surprisingly low δ may be accounted for if the former scheme of Zhuzhe and R. (*C.A.* 44, 2842g) is supplemented by a recombination of upper-zone electrons with acceptor levels of O. N. Thom

1. RYVKIN, S. M.
2. USSR (600)
4. Fluorescence
7. Extending the limits of applicability of Tolstoi's and Feofilov's method towards short-time periods in the study of exposure processes. Izv. AN SSSR. Serv fiz. 15, no. 6, 1951.

9. Monthly List of Russian Accessions, Library of Congress, January, 1953. Unclassified.

RYVKIN, S.M.

CA

The exciton character of absorption of light and impurity photoconductivity. V. P. Zhurav and S. M. Ryvkin (Leningrad Phys.-Tech. Inst.). *Doklady Akad. Nauk S.S.S.R.* 77, 241-4 (1951).—The conclusion that the photocond. of Cu_2O is of an impurity character, established by previous exptl. work (*ibid.* 68, 487 (1949); *Zhur. Eksp. Teor. Fiz.* 18, 1521 (1948); 19, 246 (1949); 20, 152 (1950); *C.A.* 43, 4924; 44, 2812) and confirmed by observations of Okada and Uno (*C.A.* 44, 5007) that, in the vicinity of the limit of the absorption band at 0.63μ , the photocond. increases with the content of excess O, involves the difficulty that, in this range, the absorption is much too high to be attributed to the very small no. of electrons on the impurity acceptor levels. This difficulty is resolved, without abandonment of the previously assumed zone scheme, by attributing the transition of electrons from the impurity level M to the conduction zone, not to direct action of the light quanta on the impurity atoms, but to secondary light quanta on the impurity lattice. The exciton—absorption of light by the main crystal lattice. The exciton thus produced can either recombine or meet an ionized impurity center and transmit its energy, thus lifting an electron from the impurity level to the conduction zone; this constitutes a sort of "exciton collision of the 2nd kind." At low temps., the concn. of electrons in M is small, and hence practically all the excitons will recombine, and the photoelec. quantum yield will be small. At a sufficiently high temp., the no. of electrons on M will be high, and

practically all the excitons will end in collisions of the 2nd kind, with a resulting max. quantum yield. If the no. p of excitons produced in unit vol. per unit time is proportional to the light energy $h\nu$ absorbed, $p = \alpha h\nu$, where the factor α expresses the "exciton yield." With τ and τ' denoting, resp., the mean life of the exciton until a collision of the 2nd kind and a recombination, and n = concn. of ionized impurity atoms (electrons in M), v = velocity of the exciton, q = cross section for the collision, one has $\tau = 1/nvq$; the mean life in the intermediate case, where both recombination and collisions of the 2nd kind are significant, is $\tau = \tau' \tau / (\tau' + \tau)$, and the no. p_1 of excitons effective in lifting electrons into the conduction zone is $p_1 = p \tau / (\tau + \tau')$, where $s = 1/vq\tau'$, or, finally, $p_1 = \alpha h\nu / (s + n)$. From the kinetic equations, in the case where the trapping levels M' are metastable, and the photocond. is of the hole type, the observed quantum yield is found $\beta = (nq/2) / (s + n)$, where n = concn. of the pos. holes. At low temps., $n \ll s$, and $\beta = (nq/2) \sim e^{-s/2kT}$, whereas at high temps., where n can exceed s , $\beta = nq/2 = \text{const.}$ This temp. dependence of β is in agreement with previous observations. The same mechanism of photocond. may hold in alkali halide crystals, and the internal photoelec. effect may be contingent on collisions of the 2nd kind between excitons and ionized F centers. It is not observed at ordinary temps. in the region of the absorption, but should appear on simultaneous illumination with the wave length of the F band or on heating.

N. Thon

USSR/Physics - Semiconductors

Jan/Feb 52

"Photoconductivity of Cuprous Oxide," V. N. Zhuzhe, S. M. Ryvkin, Leningrad Tech Inst, Acad Sci USSR

"Iz Ak Nauk SSSR, Ser Fiz" Vol XVI, No 1, pp 93-107

Attempts to prove that specific stationary photocond may be characterized by: absorption coeff, coeff of "quantum output," mean lifetime of photocurrent carriers and mobility of photocurrent. Refers to previous works (cf. S. M. Ryvkin, "Dok Ak Nauk SSSR" Vol LXVIII, 673, 1949; "Zhur Eksper 1 Teoret Fiz" 20, 139, 1949) and mentions recent expts by Ye. F. Gross and N. A. Karryev, who are

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USSR/Physics - Semiconductors (Contd) Jan/Feb 52

believed to have found the optical spectrum of the exciton. (cf. Ye. F. Gross and N. A. Karryev, "Optical Spectrum of the Exciton," "Dok Ak Nauk SSSR" Vol LXXIII, 3, 1951). Indebted to A. F. Ioffe.

218T90

RYVKIN, S. M.

RYVKIN

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CIA-RDP86-00513R001446510020-8"

FA 236T96

USSR/Physics - Photo Resistors

Oct 52

"Letter to the Editor. Problem of the General Criterion for Choosing Between the 'Barrier' and 'Concentration' Theories of Photo Resistance," S. M. Ryvkin

"Zhur Tekh Fiz" Vol 22, No 10, pp 1693-1695

Discusses article of A. Gibson (Proc Phys Soc B, 64, 603, 1951). Cites V. P. Zhuze (1950), V. Ye. Lashkarev, and G. A. Fedorus (1952). Considers problem of establishing a general criterion for determining whether a photo resistor is of the barrier or concentration type.

236T96

USSR

2

Fundamental investigation of the effect of oxygen on the electric and photoelectric properties of the lead sulfide photoresistances. S. M. Ryvkin. *Izv. Akad. Nauk SSSR, Tekh. Fiz.* 22: 1030-44 (1952); *Science Transl.* 305: 730 (1953); cf. G.A. 46: 10859b. The text is an investigation on the effect of the "reversible" (loosely bound) O show that, after high-temp treatment, the PbS layers absorb O vigorously also at ordinary temp, the absorption being centered in the interstices between the small crystals of PbS. The absorption of O changes the properties not only of the interstices but also of the whole layer, viz. both the elec. and photoelec. cond. increase following the same law. When O is absorbed, the "time const. of photocond." increases in accordance with the same law as that obeyed by the increase of photocond. itself. The bond energy between O and the layer (interstices) varies from 0.25 to 0.56 e.v. for the samples tested. The coeff. of diffusion of O in the interstices is about 10^{-14} cm²/sec. at 30-40°, the energy of activation of diffusion being a few tenths of 1 e.v.

37 30

K. L. C.

PA
Effect of oxygen on the conductivity and photoconductivity of lead sulfide photoresistors. S. M. Ryvkin and L. N. Malakhov (Leningrad Phys.-Tech. Inst., *Doklady Akad. Nauk S.S.S.R.* 85, 703-4 (1952)).—Controlled aints. of "reversible," i.e. weakly bound, O (I) were introduced into PbS by way of satn. at room temp. and partial outgassing in *vacuo* at a somewhat higher temp. T (32.5, 40, 40°) for a definite length of time t , and reverting to room temp. where the I content, attained at the higher T , remained practically unchanged; at any given T , a longer t means lower I content in the PbS. The stationary photocond. $\Delta\sigma_s = e\mu_0\beta h I$ (where μ_0 = mobility of the carriers of the photocurrent, τ = their mean life, β = quantum efficiency, h = absorption coeff., I = intensity of light in no. of quanta) and τ were measured as functions of t , taken as a measure of the I content. The 2 curves are very nearly identical, both $\Delta\sigma_s$ and τ falling in the same manner with increasing t . This correlation proves that, of the magnitudes detg. $\Delta\sigma_s$, only τ depends on the content of I, and that neither β nor μ_0 is affected by it. It therefore would appear that the O

atoms in PbS do not play the role of centers of an impurity photoeffect. It could be expected that the I content should have the same effect on μ_0 and on the mobility μ_0 of the carriers of the dark current, and, since it was found to have no effect on μ_0 , it should have none on μ_0 either. This conclusion was tested by measurements of the dark cond. σ_d of $e\mu_0\mu_0$ (where μ_0 = concn. of the carriers in the dark) and of the Hall const. R_H giving μ_0 . It developed that, while μ_0 is practically independent of the I content, $\sigma_d = R_H\sigma_s$ falls with increasing t (decreasing I) in the same manner as σ_s itself. The conflict between this result and the prediction can be settled by assuming, with Hahn (C.A. 46, 1321k) that in polycryst. PbS, R_H is detd. mainly by the well-conducting PbS crystallites, whereas σ_d depends on the poorly conducting intercryst. layers. If so, μ_0 is not equal to $R_H\sigma_s$, and, further, I is localized in the intercryst. layers and does not penetrate into the crystallites. Inasmuch as $\Delta\sigma_s$ varies with the I content in the same manner as σ_s , it follows that the photocond. also depends on the intercryst. matter. N. Thou

(PA 56 no. 671:7677 '53)

RYVKIN, S.M., kandidat fiziko-matematicheskikh nauk, ~~PARINSKIY~~, R.L., redaktor; KORNILOV, B.I., redaktor.

[The effect of radiation on semiconductors and insulators; a collection of translations] Deistvie izlucheni na poluprovodniki i izolatory; sbornik perevodov. Pod red. S.M. Ryvkina. Moskva, Izd-vo inostrannoi lit-ry, 1954. 279 p. (MIRA 8:5)

(Semiconductors)(Electric insulators and insulation)
(Radiation)

USSR

537.312.5
8296. On certain singularities of the photoelectric current in single crystals of cadmium sulphide. S. M. RYVKIN AND L. G. PARIISKI. *Zh. tekhn. Fiz.*, 21, No. 1, 3-17 (1954) in Russian.

An experimental investigation of the photoelectric current, photorectification, the current-voltage relations under illumination near the cathode, heterogeneous or non-uniformly illuminated specimens, the dependence of photocurrent under infrared illumination and the counting of α particles.

W. BARDLEY

USSR.

62
②
Induced conductivity in layers and monocrystals of cadmium sulfide as a function of the energy of the exciting electrons. S. M. Ryvkin, B. M. Konoyalenko, and Yu. S. Smetannikova. *Zhur. Tekh. Fiz.* 24, 961-77(1984). CdS monocrystals were produced from the gas phase, or slabs of polycryst. CdS were prepd., both of which were used in the measurements. The exciting electrons in the range from 2 to 30 e.kv. produced a cond. The induced cond. was measured and it was found that from 30 down to 10 e.kv. it is practically independent of the energy of the exciting electrons. At lower energies an abrupt drop of the cond. is noted. Since the ionizing abilities of the electrons in the energy interval under investigation could not have changed, it is obvious that the drop for values below 10 e.kv. must be connected to a change in the depth of penetration of the electrons into the crystal. This drop of cond. is thus explained by the presence of "insensitive" layers formed at the surface. If one compares these results with the character of the internal photoeffect in a zone with internal absorption, then the similarity between the drop of the photoeffect at increasing energy of the light quanta and the drop of the induced cond. at the decrease of the energy of the exciting electrons is rather striking. In both effects one ascribes the cause to a decrease of the depth of penetration

of the ionizing radiation, and explains it by the presence of an "insensitive" layer at the surface of the sample.

Werner Jacobson

RYVKIN, S. M.

APPROVED FOR RELEASE: Thursday, September 26, 2002

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GERM

537.311.33 : 548.289 1695
Determination of the Relation between Mobility
and Diffusion Coefficient for Photo-holes in n-Type
Germanium. — S. M. Ryvkin. (Zh. tekh. Fiz., Dec.
1954, Vol. 24, No. 12, pp. 2138-2149.) Detailed report
of an experimental investigation of the diffusion and
drift of photoelectrically produced holes. The results
confirm the theoretical prediction that Einstein's
formula (1) relating mobility to diffusion coefficient
applies in this case. The stationary distribution of
minority carriers in a partially illuminated semi-
conductor is discussed in an appendix.

sb
jw

Ryabin, S. A.

537.311.33
5874. INFLUENCE OF HEAT TREATMENT ON THE LIFE
OF THE SUBSIDIARY CURRENT CARRIERS IN GERMANIUM
(KINETICS OF THE FORMATION OF DEFECTS DURING
HEAT TREATMENT). T.V. Mashovets and S.M. Ryabin.
Zh. tekhn. Fiz., Vol. 25, No. 9, 1530-43 (1955). Russian.
The effect of thermal treatment at comparatively "low"
temperatures (400-500°C.) on the life of the subsidiary cur-
rent carriers in germanium is that the life decreases with
rising temperature and duration of the treatment. The cause
is the occurrence of defects acting as recombination centres.
Investigation of the kinetics of the defect formation process
yielded data on the energy structure of the defects.
Electrical Research Association

2 met 3
Ryabin

USSR/Physics Photodiodes

Card 1/1 Pub. 153-2/21

Author : Alferov, Zh. I.; Konovalenko, B. M.; Ryvkin, S. M.; Tuchkevich, V. M.;
and Uvarov, A. I.

Title : Flat germanium photodiodes

Periodical : Zhur. tekhn. fiz. 25, 11-17, Jan 1955

Abstract : The authors describe the principal properties of germanium photodiodes of unique design and free from the usual deficiencies. In this design the illuminated area is not limited by the length of the diffusion displacement and can reach very large sizes corresponding to the total area of the n-p transition. They conclude: the germanium photodiode is a photocell valve to which considerable voltages can be applied in the closed direction; the sensitivity of the photodiode is about 300 times that of photocells with external photoeffect; the proper time of germanium photodiodes studied is about $1/10^5$ second, and can be decreased by decrease of the thickness of the n-germanium layer; the characteristics are very stable and free of "fatigue". Deficiencies are considerable temperature dependence of the dark current. The authors thank D. N. Nasledov, N. V. Shchetinina, and L. P. Bogomazov. Three references, including one USSR (S. M. Ryvkin, same issue, p. 21).

Institution: --

Submitted : October 13, 1954

USSR/Physics - Photodiodes

Card 1/1 Pub. 153-3/21

Author : Konovalenko, B. M.; Ryvkin, S. M.; and Tuchkevich, V. M.

Title : Sensitivity of germanium photodiodes to x-rays

Periodical : Zhur. tekhn. fiz. 25, 18-20, Jan 1955

Abstract : Numerous attempts have been made to utilize photocell valves as dosimeters of x-rays (e.g. V. M. Tuchkevich, Phys. ZS d. Sow. 5, 1934 and 7, 1935; I. M. Polyak and M. N. D'yachenko, ZhTF 22, 1952), but without practical results in consequence principally of the insufficient sensitivity. Recently a new type has been investigated, namely the germanium photodiode (same issue, p. 11; see preceding abstract). In the present article the authors expound certain results of their efforts on this problem; namely, they compare the sensitivity of germanium photodiodes and certain photocell valves under various conditions. They point to the possibility of the practical utilization of n-p transitions in germanium as dosimeters of intense x-rays (e.g. direct radiation). They thank D. N. Nasledov and N. I. Dodon. Six references: e.g. I. Shive, JOSA, 43, 1953: e.g. I. Shive, JOSA, 43, 1953.

Institution: --

Submitted : October 13, 1954

USSR/Physics - Germanium photodiodes

Card 1/2 Pub. 153-4/21

Author : Ryvkin, S. M.

Title : ~~Problem of the mechanism governing the action of germanium photodiodes~~

Periodical : Zhur. tekhn. fiz. 25, 21-28, Jan 1955

Abstract : The theory of photoelectromotive forces in semiconductors was developed by Ya. I. Frenkel' (Sov. Phys. 8, 1935), A. V. Ioffe and A. F. Ioffe (ZhETF 5, 1935), L. Landau and Ye. Lifshits (Sov. Phys. 9, 1936), B. I. Davydov (ZhTF 7, 1937), Yu. P. Maslakovets (ZhETF 10, 1940), V. Ye. Lashkarev (ZhETF 18, 1948; Izv. AN SSSR, ser. fiz. 16, 1952), and A. I. Gubanov (ZhETF 25, 1953); this theory explains in particular the mechanism governing the action of photocell valves and the relation between photo-emf and character of the contact field at the boundary semiconductor-metal, and established that the valve photo-emf arises in the presence of a blocking layer. In the present article the authors expound the principal notions concerning the operation of a n-p diode as a photodiode, and derive a basic relation among photo-emf, short-circuit photocurrent, and saturation current and also derive the general equation of

Card 2/2

of the photodiode; they expound the results of a quantitative experimental verification of the relation, and finally discuss the efficiency of photodiodes as photocell values. They thank N. Shchetinina and L. Kozhina. Nine references: e.g. I. Shive, JOSA 43, 1953.

Institution: --

Submitted : October 13, 1954

RYVKIN, I.A., kand.med.nauk (Moskva)

Role of heredity in the etiology of hypertension. Klin.med. 38
no.12:24-29 D '60. (MIRA 14:2)

1. Iz 1-y kafedry terapii (zav. - deystvitel'nyy chlen AMN SSSR
prof. M.S. Vovsi [deceased]) Tsentral'nogo instituta usovershenst-
vovaniya vrachev (dir. M.D. Kovrigina).
(HYPERTENSION) (HEREDITY OF DISEASE)

RYVKIN, I.A., kandidat meditsinskikh nauk.

Thrombotic diseases of the peripheral vessels (from foreign periodical literature). Vop.pat.serd.sos.sist. 3 no.3:3-20 '54. (MLBA 7:9)
(Thrombosis)

MYASNIKOV, Aleksandr Leonidovich, prof., red.; RYVKIN, Izrail'
Abramovich; BONDARENKO, B.A., red.

[Incidence of hypertension and coronary arteriosclerosis
and living conditions] Rasprostranenie gipertonicheskoi
bolezni i koronarnogo ateroskleroza i usloviia zhizni;
sbornik statei. Leningrad, Medicina, 1964. 166 p.
(17.8)

1. Direktor Instituta terapii AMN SSSR, deystvitel'nyy chlen
AMN SSSR (for Myasnikov). 2. Institut terapii AMN SSSR (for
Ryvkina).

RYVKIN, I.A.

"Cor et vasa" for 1960. Kardiologiia 1 no.2:83-85 Mr-Ap '61.
(MIRA 15:1)
(CARDIOLOGY--PERIODICALS)

RYVKIN, I. A. Doc Med Sci -- (diss) "The pre-hypertonic state." Mos, 1959
23 pp (Acad Med Sci USSR), 200 copies. Printed by duplicating machine.
(KL, 45-59, 149)

RYVKIN, I.A., kand.med.nauk (Moskva)

Control of cardiovascular diseases in the U.S.S.R. Med.sesstra
21 no.11:4-8 N '62. (MIRA 16:3)
(CARDIOVASCULAR SYSTEM--DISEASES)

RYVKIN, I.A.; IGNATOVA, L.N.

Significance of hereditary and environmental factors in the development of hypertension and lipid metabolism disorders; studies on twins. Vest. AMN SSSR 18 no.12:29-34 '63.
(MIRA 17:7)

1. Institut terapii AMN SSSR.

MYASNIKOV, A.L.; RYVKIN, I.A. (Moskva)

Prevention of hypertension and coronary atherosclerosis.
Vest. AMN SSSR 20 no.6:30-41 '65. (MIRA 18:9)

RYVKIN, I.A.; SEGAL', Yu.Ye.

Conditioned and unconditioned vascular reflexes in initial stages
of hypertension. Terap.arkh. 27 no.2:15-25 '55. (MIRA 8:7)

1. Iz 4-y Moskvoskoy klinicheskoy bol'nitsy (glavnyy vrach--zaslu-
zhennyy vrach RSFSR M.V.Ivanyukov) i Instituta psikiatrii (dir.--
Dotsent D.D.Fedotov) Ministerstva zdravookhraneniya SSSR.

(HYPERTENSION, physiology,

vasc. reflexes, conditioned & unconditioned in initial
stages of dis.)

(REFLEX, CONDITIONED,

vasc., in hypertension)

(BLOOD VESSELS, physiology,

vasc. reflexes, conditioned & unconditioned in initial
stages of hypertension)

(REFLEX,

vasc., conditioned & unconditioned in initial stages of
hypertension)

MYASNIKOV, A.L.; RYVKIN, I.A.

Research on hypertension, atherosclerosis, and coronary insufficiency
in 1960. Vest. AMN SSSR 15 no. 11:72-75 '60. (MIRA 13:12)
(HYPERTENSION) (ARTERIOSCLEROSIS) (CORONARY VESSELS)

RYVKIN, I.A., kand.med.nauk (Moskva)

Problems in the clinical aspects of atherosclerosis and hypertension
at the 11th session of the Institute of Therapy of the Academy of
Medical Sciences of the U.S.S.R. Kaz. med. zhur. no. 2:96-98
Mr-Ap ' 61 (MIRA 14:4)

(ARTERIOSCLEROSIS) (HYPERTENSION)

RYVKIN, I.A.; SUDAKOVA, S.A.

Activity of glutamic-oxalic transaminase in patients with active
rheumatic fever. Terap.arkh. 32 no.9:66-70 '60.

(MIRA 14:1)

1. Iz 1-y kafedry terapii (zav. - deystvitel'nyy chlen AMN SSSR
prof. M.S. Vovch [deceased]) Tsentral'nogo instituta usovershenst-
vovaniya vrachey i klinicheskogo otdeleniya (zav. - kand.med.nauk
S.M. Bremener) Instituta vitaminologii.

(RHEUMATIC FEVER) (TRANSAMINASE)

RYVKIN, I.A.; KALININA, N.V. (Moskva)

Scientific research on cardiovascular pathology in 1961-1962.
Klin.med. no.10:74-82 '61. (MIRA 14:10)

1. Iz Instituta terapii AMN SSSR (dir. - deystvitel'nyy chlen
AMN SSSR prof. A.L. Myasnikov).
(CARDIOVASCULAR SYSTEM--DISEASES)

MAKAROV, G.N.; KAZINIK, Ye.M.; POPCHENKO, R.A.; SEMENOV, A.S.; YERKIN, L.I.; RYVKIN, I.Yu.; PRIVALOV, V.Ye.; MUSTAFIN, F.A.; KUZNETSOV, P.V.; ZOROKHOVICH, G.Ya.

Coking of the coal charge in an oven with a rotating ring floor.
Koks i khim. no.11:34-41 '62. (MIRA 15:12)

1. Moskovskiy khimiko-tekhnologicheskii institut im. D.I. Mendeleeva (for Makarov, Kazinik, Popchenko, Semenov).
 2. Vostochnyy uglekhimicheskii institut (for Yerkina, Ryvkin, Privalov).
 3. Nizhne-Tagil'skiy metallurgicheskii kombinat (Mustafin, Kuznetsov, Zorokhovich).
- (Coke)

NEFEDOV, P.Ya.; CHERNOEROVKIN, V.P.; KATARIN, V.P.; ANAN'IN, A.A.;
BALBASHEV, V.K.; RYVKIN, I.Yu.; TSYNOVNIKOV, A.S.; KUZ'MIN, I.V.;
YAKOVLEV, S.Ye.; SHULAYEV, V.I.; MATSEVICH, S.I.; NARNITSKIY, A.P.;
BOKOV, O.K.; CHEREPANOV, V.Ye.

Coke briquets for cupola furnaces. Lit. proizv. no.3:6-7
Mr '65. (MIRA 18:6)

POLYAKOV, D.L., inzhener, redaktor; BATURIN, V.V., kandidat tekhnicheskikh nauk, redaktor; BORISOV, V.P., inzhener, redaktor; GOVOROV, V.P., inzhener, redaktor; MATS, Ya.M., inzhener, redaktor; RYVKIN, Kh.I., kandidat tekhnicheskikh nauk, redaktor; TURKUS, V.A., dotsent, redaktor; KORSAKOV, S.S., retsenzent; UFIMTSEV, G.N., retsenzent.

[Manual for planning heating and ventilation systems of industrial enterprises] Spravochnik po proektirovaniu otopleniia i ventilatsii promyshlennykh predpriatii. [Redkollegiia D.L. Poliakov i dr. Redaktor V.A. Turkus] Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1953- (MIRA 7:6)

1. Leningrad, Proyektnyy institut ministerstva stroitel'stva.
(Heating--Handbooks, manuals, etc.) (Ventilation--Handbooks, manuals, etc.)

ACC NR: AP7002994

(A, N)

SOURCE CODE: UR/0413/66/000/021/0095/0095

INVENTORS: Ryvkin, L. S.; Rodnikov, V. A.

ORG: none

TITLE: Accumulating fuel pump. Class 46, No. 189644

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 24, 1966, 95

TOPIC TAGS: pump, engine fuel pump, internal combustion engine

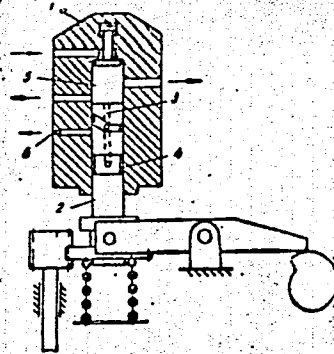
ABSTRACT: This Author Certificate presents an accumulating fuel pump for an internal combustion engine of, say, the free-piston type. The pump contains a casing which hold a bushing, a plunger, and a hydraulic damper (see Fig. 1). To improve its reliability and to simplify its construction, the damper is placed in the plunger couple and forms an axial drill hole in the plunger. This hole is connected to an annular groove on the cylindrical surface of the plunger and provides a flow duct for the fuel (after the cutoff) from the chamber above the piston through a nozzle in the bushing.

Card 1/2

UDC: 621.43.038.5--752.2

ACC NR: AP7002994

Fig. 1. 1 - bushing; 2 - plunger; 3 - axial
drill hole; 4 - annular groove;
5 - chamber above the piston;
6 - nozzle



Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 29Oct65

ACC NR: AP7004787 (A) SOURCE CODE: UR/0413/67/000/001/0113/0114

INVENTOR: Ryvkin, L. S.; Rodnikov, V. A.

ORG: None

TITLE: An accumulative fuel pump. Class 46, No. 190143

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1967, 113-114

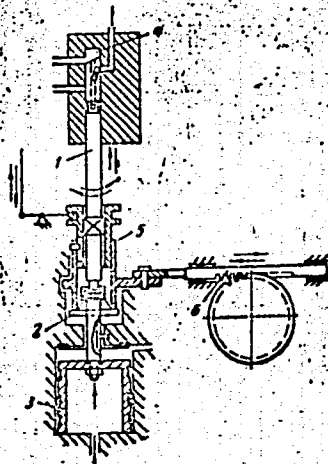
TOPIC TAGS: engine fuel pump, internal combustion engine component

ABSTRACT: This Author's Certificate introduces: 1. An accumulative fuel pump for internal combustion engines, e. g. free piston engines. The unit contains a housing holding a plunger pair. Reciprocating motion is imparted to the plunger by a mechanical transmission and an accumulator. In order to improve fuel delivery and simplify design of the pump, there is a cavity above the plunger which is filled with fuel during the suction stroke for stopping the plunger and setting the hydraulic thrust. 2. A modification of this pump with the plunger connected to a rotating unit which may be made in the form of a supply sleeve to turn the plunger about its axis for fuel delivery. 3. A modification of this pump in which the rotating device is equipped with any type of drive, e. g. hydraulic, gas or mechanical.

UDC: 621.43.038.5

Card 1/2

ACC NR: AP7004787



1—plunger pair; 2—mechanical drive; 3—accumulator; 4—cavity above the plunger;
5—rotating unit; 6—drive for the rotating unit

SUB CODE: ^{21/}~~E1~~ SUBM DATE: 10May65

Card 2/2

L 20926-66 EWT(d)/EWT(1)/EWT(m)/EWP(f)/EPF(n)-2/T-2/ETC(m)-6 WW

ACC NR: AP6002578

(A)

SOURCE CODE: UR/0286/65/000/023/0071/0071

AUTHORS: Bulychev, F. V.; Borisoglebskiy, A. I.; Ryvkin, L. S.

40
B

ORG: none

TITLE: Fuel pump for free-piston diesel compressors. Class 46, No. 176751

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 71

TOPIC TAGS: engine fuel pump, compressor

ABSTRACT: This Author Certificate presents a fuel pump for free-piston diesel compressors with spring drive of the pump plunger. To simplify the design, a piston is mounted between the plunger and the spring. The space beneath the piston is connected through an automatic intake valve to the compressor cavity of the diesel compressor and through an exhaust valve to the atmosphere. For automatic injection control, a gas plunger is used. This plunger is connected to the diesel cavity of the diesel compressor and is coupled to the exhaust valve.

SUB CODE: 13, 21/ SUBM DATE: 20Jul62

Card 1/1 FW

ACC NR: AP5028550

SOURCE CODE: UR/0286/65/000/020/0163/0163

AUTHORS: Borisoglebskiy, A. I.; Bulychev, F. V.; Kreps, L. I.; Ryvkin, L. S.; Tsentsiper, M. L.

ORG: none

TITLE: Accumulating fuel pump. Class 46, No. 166199

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 163

TOPIC TAGS: engine fuel pump, engine fuel system, engine component, internal combustion engine

ABSTRACT: This Author Certificate presents an accumulating fuel pump for internal combustion engines (such as free piston engines). The pump contains a case with coaxially placed cartridges, each of which carries a plunger with curved dosing and conveying rims and a counterplunger connected to the piston of the accumulator. To lower the cost and improve the performance, the counterplunger is provided with an internal cutoff duct connecting the aperture between the plungers to the low pressure zone through a duct in the plunger. The plunger may also contain a duct for feeding fuel to the atomizer.

SUB CODE: 21/ SUBM DATE: 16Jun62

Card 1/1

UDC: 621.43.038.5

SA

A 548

89. **Brittleness of Liquids.** M. KORNFIELD AND M. RYVKIN. *J. of Exp. and Theor. Phys. U.S.S.R.*, 9, 5, pp. 895-898, 1939. *In Russian.*—It was found that for velocities of impulsive deformation of about 20 m./sec. a liquid of viscosity 5×10^5 poise suffers brittle disruption. Results for velocities of 300 m./sec. are also described. The nature of the disruption was observed photographically. D. S.

ASD-SEA METALLURGICAL LITERATURE CLASSIFICATION

0-2757-12-27

[illegible]

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

RYVKIN, M.L.

Stratigraphy of Lower Devonian sediments in the Turkestan-Alay
mountain system (Sokh-Isfayram interfluve). Trudy Uz. geol. upr.
no.2:20-21 '62. (MIRA 16:8)
(Tien Shan--Geology, Stratigraphic)

CHEKHOVICH, V.D.; SOLOV'YEVA, M.N.; ZHELEZNOV, V.M.; RYVKIN, M.I.;
STARODUBTSEVA, A.S.; STUKOVA, K.V.; URMANOV, Kh.Kh.

New data on the Devonian of Kyzyl-Kum. Dokl.AN SSSR 107 no.1:
149-150 Mr '56. (MIRA 9:7)

1. Uzbekskoye geologicheskoye upravleniye. Predstavleno akademikom
D.V.Nalivkinym.
(Kyzyl-Kum--Geology, Stratigraphic)

RYVKIN, Mikhail Osipovich; DEMENT'YEV, Sergey Ivanovich;
PLESHKOV, Leonid Yefimovich [deceased]; GOKHBOM,
Yevgeniy Naumovich; RABKIN, Yu.I., red.

[Transportation in metallurgical plants] Transport na
metallurgicheskikh zavodakh. Moskva, Metallurgiya, 1964.
412 p. (MIRA 17:12)

RYVKIN, Mikhail Osipovich; DLUGACH, B.A., red.; LANOVSKAYA, M.R., red.
izd-va; KARASEV, A.I., tekhn.red.

[Railroad transportation in iron and steel plants] Zhelezno-
dorozhnyi transport na zavodakh chernoi metallurgii. Izd.2.,
ispr. i dop. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi
i tsvetnoi metallurgii, 1960. 294 p. (MIRA 13:12)
(Railroads, Industrial) (Steel industry)
(Iron industry)

KHAR'KOV, A.A., dots., otv. red.; RYVKIN, M.S., dots., red.;
MERZLYAKOVA, Z.S., st. prepod., red.; PARSHUKOV, B.V.,
st. prepod., red.; TAUBER, A.I., st. prepod., red.

[Abstracts of reports of the Zonal Scientific and technological Conference of Teachers of Physics, Methodology of Physics, and General Technical Subjects in the Pedagogical Institutes of Siberia and the Ural Mountain Region]
Tezisy dokladov Zonal'noy nauchno-tekhnicheskoy konferentsii
prepodavatelei fiziki, metodiki fiziki i obshchetekhnicheskikh
distsiplin pedagogicheskikh institutov Sibiri i Urala. Novo-
sibirsk, Novosibirskii gos. pedagog. in-t, 1962. 167 p.

(MIRA 16:11)

1. Zonal'naya nauchno-tekhnicheskaya konferentsiya prepodavateley fiziki, metodiki fiziki i obshchetekhnicheskikh distsiplin pedagogicheskikh institutov Sibiri i Urala. 5th, 1962.

(Physics—Study and teaching)

(Technical education)

PHASE I BOOK EXPLOITATION

SOV/4770

Rumer, Yuriy Borisovich, and M.S. Ryvkin

Teoriya otноситel'nosti (The Theory of Relativity) Moscow, Uchpedgiz, 1960.
211 p. 20,000 copies printed.

Eds.: A.A. Gobanov, and Yu. N. Drozhzhin; Tech. Ed.: V.I. Korneyeva.

PURPOSE: This book is intended for students of pedagogical institutes, teachers of physics in secondary schools, and for general readers interested in modern physics.

COVERAGE: The authors discuss the fundamentals of the theory of relativity, and of its most important applications (quantum theory of light, some problems of the theory of accelerators, energetics of nuclear reactions, etc.) The contents of the book correspond basically to the program of the course of theoretical physics at pedagogical institutes, except for the problems discussed in Ch. IV (The Theory of the Field) which transcend the requirements of that course. No personalities are mentioned. There are no references.

Card 1/3

POKROVSKIY, V.L.; RYVKIN, M.S.

Effect of anisotropy on threshold phenomena in superconductors. Zhur. eksp. i teor. fiz. 40 no.6:1859-1865 Je '61. (MIRA 14:8)

1. Institut radiofiziki i elektroniki Sibirskogo otdeleniya AN SSSR i Novosibirskiy pedagogicheskiy institut.

(Superconductivity)
(Ultrasonic waves)
(Electromagnetic waves)

S/056/62/043/001/015/056
B125/B102

24.2/20
AUTHORS:

Pokrovskiy, V. L., Ryvkin, M. S.

TITLE:

Thermodynamics of anisotropic superconductors

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
no. 1(7), 1962, 92-104

TEXT: In the low-temperature region, V. L. Pokrovskiy's theory of anisotropic superconductors (ZhETF, 40, 641, 1961) is usually in good agreement with experimental results. No such agreement is found at temperatures close to the critical temperature T_{crit} . For example, the inequalities $\Delta C/C_n(T_{crit})$ for the discontinuity of the specific heat at T_{crit} and the universal inequality $(1.4C_n(T_{crit})/\Delta C - 1)/2 \geq \ln(0.94\chi)$ near T_{crit} are no longer valid for many elements. Coulomb interaction of electrons and the possible formation of Cooper pairs in asymmetric states do not change the results of the "anisotropic" theory, especially not the universal relations. The contribution of higher approximations is always

Card 1/2

✓B

Thermodynamics of anisotropic ...

S/056/62/043/001/015/056
B125/B102

small when T and T_{crit} differ only slightly and increases $Q(0)$ by $\sim ga^2$
(g = coupling constant, a = anisotropy constant) when $T \ll T_{\text{crit}}$. The
discrepancy between theory and experiment at temperatures close to
 T_{crit} is probably due to the fact that near T_{crit} the quasi-particle con-
cept is not applicable. There are 2 tables. ✓B

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya
Akademii nauk SSSR (Institute of Radiophysics and
Electronics of the Siberian Department of the Academy of
Sciences USSR)

SUBMITTED: November 23, 1961 (initially),
March 15, 1962 (after revision)

RYVKIN, M.S.

Methodology of the presentation of certain parts of dynamics in
a physics course. Uch. zap. Novosib. gos. ped. inst. no.18:93-
105 '63. (MIRA 17:10)

RUMER, Yu.B.; RYVKIN, M.S.; GOBANOV, A.A., red.; DROZHZHIN, Yu.N.,
red.; KORNEYEVA, V.I., tekhn.red.

[Theory of relativity] Teoriia otnositel'nosti. Moskva, Gos.
uchebno-pedagog.izd-vo M-va prosv.RSFSR, 1960. 211 p.

(MIRA 13:7)

(Relativity (Physics))

25205

S/056/61/040/006/026/031
B125/B202

24,2140

AUTHORS: Pokrovskiy, V. L., Ryvkin, M. S.

TITLE: Influence of anisotropy on threshold phenomena in
superconductors

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40,
no. 6, 1961, 1859-1864

TEXT: The authors studied absorption of ultrasonics and electromagnetic waves in anisotropic superconductors at 0°K near the threshold frequency ($\omega \sim 10^{11}$ to 10^{12} sec^{-1}). They demonstrate that the threshold frequency depends on the propagation direction of the waves. The excitation of sound oscillations in a strongly non-isothermal plasma without magnetic field has been studied by G. V. Gordeyev, ZhETF, 27, 19, 24, 1954. The laws of conservation of energy and momentum in the absorption of a phonon (or photon) connected with the decay of a Cooper pair reads as follows (notations by V. L. Pokrovskiy (ZhETF, 40, 898, 1961)):

$$\vec{q}(\vec{p}, \vec{q}) = \epsilon_{\vec{p}} + \epsilon_{\vec{p}-\vec{q}} = \sqrt{\left\{ \frac{2}{p} + \Delta^2 \right\}} + \sqrt{\left\{ \left(\frac{1}{p} - \vec{v}\vec{q} \right)^2 + \Delta^2 \right\}} \quad (1)$$

Card 1/7

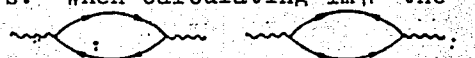
25205

S/056/61/040/006/026/031

B125/B202

Influence of anisotropy on ...

The anisotropy of a superconductor changes the frequency dependence of absorption for the following two reasons: 1) in the anisotropic superconductors the minimum of the left-hand side of (1) is attained at certain points of the Fermi surface. 2) In the electromagnetic case the decay probability strongly increases with a decrease in the region of the allowed pair decay. Absorption of ultrasonics is calculated by using graphs. For calculating the absorption it is sufficient to calculate the imaginary part of the polarization operator $\Pi(\vec{q}, \omega)$ in the weak-coupling approximation. The results thus obtained qualitatively also hold for the strong coupling in superconductors. When calculating $\text{Im}\Pi$ the following two graphs must be considered



$$\text{Then } \text{Im}\Pi(\vec{q}, \omega) \sim \int d^3p \left[u^2 v'^2 + \frac{\Delta \Delta'}{4ee'} \right] g^2 g'^2 \delta(e + e' - \omega), \quad (2)$$

holds up to numerical factors. The dimensionless function $g = g(\vec{p})$ characterizes the anisotropy of the electron-phonon interaction. With $q \ll p_0$, $\Delta \sim \Delta'$, $g' \sim g$ holds from which in turn

$$\text{Im}\Pi(\vec{q}, \omega) \sim \iint g^4 \frac{\sin \theta d\theta d\varphi}{Kv} \int_{-\infty}^{\infty} d\xi \left[\left(1 + \frac{\xi}{e}\right) \left(1 - \frac{\xi'}{e'}\right) + \frac{\Delta^2}{ee'} \right] \delta(e + e' - \omega) \quad (4)$$

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Influence of anisotropy on ...

follows, where $K(\theta, \varphi)$ is the Gauss' curvature of the Fermi surface.

$$\text{Im } \Pi(\eta, \omega) \sim \iint \frac{\sin \theta d\theta d\varphi}{Kv} g^4 \frac{(\xi_1 + e_1)(\xi_2 + e_2) + \Delta^2}{\xi_1 e_2 - \xi_2 e_1} \quad (9)$$

is obtained after integration over ξ . Near the threshold $\omega^2 = \Omega^2(1+\alpha)$, $\alpha \ll 1$ (15) can be written. In approximation to the terms $\sim \alpha^{1/2}$ $\text{Im } \Pi$

$$= A c(\omega - \Omega_0)^{1/2} / v_0, A \sim \epsilon_0^4 / K_0 v_0 \Omega_0^{1/2} \quad (17) \text{ holds. } \alpha_s(\vec{n}) = \gamma(\vec{n}) \omega \text{Im } \Pi \quad (18)$$

holds for the attenuation of ultrasonics where $\gamma(\vec{n})$ is a certain experimentally not measurable function of direction. For this reason

$\alpha_s(\vec{n}) = B(\vec{n}) c(\omega - \Omega_0)^{1/2} v_0$, $B(\vec{n}) = \gamma(\vec{n}) A \Omega_0$ (19) holds near the threshold value. In the isotropic case the minimum of $\Omega^2(\theta, \varphi)$ is attained on the whole line $\theta = \pi/2$. The absorption of the electromagnetic waves is determined by the imaginary part of the polarization tensor: $\Pi_{\alpha\beta}$. If the above graphs are considered only

$$\text{Im } \Pi_{\alpha\beta} \sim \int d^3 p v_\alpha v_\beta \left[u^2 v'^2 + v^2 u'^2 - \frac{\Delta \Delta'}{2\epsilon\epsilon'} \right] \delta(\epsilon + \epsilon' - \omega). \quad (20)$$

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 B125/B202

Influence of anisotropy on ...

holds up to numerical factors. In the following

$$\text{Im } \Pi_{\alpha\beta} \sim \iint \frac{\sin \theta d\theta d\varphi}{Kv} v_{\alpha} v_{\beta} \frac{e_1 e_2 + \xi_1 \xi_2 - \Delta^2}{\xi_1 e_2 - \xi_2 e_1}. \quad (23)$$

is obtained. The integral (23) depends mainly on the type of the metal.

$$\text{Im } \Pi_{\alpha\beta} \sim \frac{v_{\alpha 0} v_{\beta 0}}{K_0 v_0} \frac{\Delta_0}{v_0 q} \left[\alpha^{1/2} + 3a_1^2 \left(\frac{\Delta_0}{v_0 q} \right)^2 \alpha^{1/2} \right], \quad (26)$$

where $v_{\alpha 0}$, $v_{\beta 0}$ hold for a Pippard metal up to the lowermost powers of α and $\Delta_0/v_0 q$. Thus, two frequency ranges which are close to the threshold range exist in a Pippard metal: 1) with $\alpha \gg (\Delta_0/v_0 q)^2$

$$\text{Im } \Pi_{\alpha\beta} = A_1 (\Delta_0/v_0 q) (\omega - \Omega_0)^{1/2}, \quad A_1 \sim v_{\alpha 0} v_{\beta 0} / K_0 v_0 \Omega_0^{1/2}. \quad (27)$$

holds and with $\alpha \ll (\Delta_0/v_0 q)^2$

$$\text{Im } \Pi_{\alpha\beta} = A_2 (\Delta_0/v_0 q)^2 (\omega - \Omega_0)^{1/2}, \quad A_2 = 3A_1 a_1^2 \Omega_0. \quad (28)$$

holds. In the range 1 absorption is reduced by anisotropy, in range 2, however, it is increased. Due to the averaging in (26) the additional small factor $\sqrt{\alpha}$ occurs. In the corresponding experiments the

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experimentally measurable absorption must be $\sim \alpha^2$. b) With the London metal ($vq \ll \Delta$) the minimum point $\Omega^2(x, \varphi)$ exactly agrees with the point of the absolute minimum of the energy gap $\Delta(x, \varphi)$. Then

$$\omega^2 - \Omega^2(x, \varphi) = 4\Delta_m^2 [\alpha - a_2(x - x_0)^2 - b_2(\varphi - \varphi_0)^2] \geq 0 \quad \text{and} \quad \text{Im} \Pi_{\alpha\beta} \sim \frac{v_\alpha v_\beta}{K_0 v_0} \left(\frac{v_0 q}{2\Delta_m} \right)^2 x_0^2 \alpha^{1/2}. \quad (30)$$

hold near the threshold. No additional small factors are obtained by averaging over the directions. In the experimentally most interesting case of the intermediary metal ($vq \sim \Delta$), $\Omega^2(x, \varphi)$ has a minimum at a certain point which is not on the line $x = 0$ and which does not agree with the minimum point of $\Delta(x, \varphi)$. In this case absorption near the threshold changes proportionally to $x_0^2 \alpha^{1/2}$, the factor $(v_0 q / 2\Delta_m)^2$ occurring in the formula for $\text{Im} \Pi_{\alpha\beta}$ instead of $(v_0 q / 2\Delta_m)^2$ in (30), however, is not small. A relatively small factor $\sqrt{\alpha}$ is obtained for the intermediary metals by averaging over the directions. The absorption in polycrystalline specimens of the intermediary metals is $\omega - 2\Delta_m$. The qualitative results in

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B125/B202

Influence of anisotropy on ...

an isotropic model and in an anisotropic model with averaging are in agreement only with intermediary superconductors. At present no experiments have been made concerning the absorption of ultrasonics in the threshold range. The experimental points which are obtained from a single experiment concerning the frequency dependence of the absorption of electromagnetic waves near the threshold value (P. L. Richards and M. Tinkham, Phys. Rev., 119, 575, 1960) are not sufficient for comparison with theoretical data. The threshold frequencies of In, Hg, Pb measured by these authors were higher than those predicted by the theory of isotropy ($\Omega_0 = 3.5 kT_c$). Exact experiments in the range near the threshold, with Pippard metals and single crystals are necessary. V. L. Pokrovskiy and V. A. Toponogov (ZhETF, 40, 1112, 1961) developed a method of determining the energy gap as a function of direction. The authors thank L. P. Gor'kov for his interest. There are 2 figures and 8 references: 5 Soviet-bloc and 3 non-Soviet-bloc. The two most recent references to English-language publications read as follows: D. C. Mattis, J. Bardeen, Phys. Rev., 111, 412, 1958. P.L. Richards, M. Tinkham. Phys. Rev., 119, 575, 1960.

Card 6/7

25205

S/056/61/040/006/026/031
B125/B202

Influence of anisotropy on ...

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Radio Physics and Electronics of the Siberian Department of the Academy of Sciences of the USSR). Novosibirskiy pedagogicheskiy institut (Novosibirsk Pedagogical Institute)

SUBMITTED: January 26, 1961

Card 7/7

POKROVSKIY, V.D.; RYVKIN, M.S.

Threshold absorption of infrared waves in superconductors.
Zhur. eksp. i teor. fiz. 43 no.3:900-905 '62. (MIRA 15:10)

1. Institut radiofiziki elektroniki Sibirskogo otdeleniya
AN SSSR.
(Superconductivity) (Infrared rays)

RYVKIN, V. O.

Technology

(Transportation in steel mills) Moskva, Gos. nauchno-tekh. izd-vo lit-ry po cherno
i tsvetnoi metallurgii, 1951.

Monthly List of Russian Accessions, Library of Congress, July 1952. Unclassified.

"On the Brittleness of Liquids, " Zhur. Eksper. i Teoret. Fiz., 9, No. 5, 1939.

Leningrad Physico-Technical Inst., -1939-.

ZEYLIDZON, Ye.D., inzhener; ALEKSANDROV, I.N., inzhener; DERYUGIN, F.F., inzhener;
GALAKTIONOV, A.S., inzhener; RYBKIN, O.L., inzhener; KUCHERUK, A.Ye.,
inzhener; RAKOVICH, A.M., inzhener.

Simplification of relay protection. Elek.sta. 27 no.2:40-48 P '56.
(MLRA 9:6)

1. Tekhnicheskoye upravleniye Ministerstva elektrostansii (for Zaylidzon)
2. Belorussenergo (for Aleksandrov). 3. Chelyabenergo (for Deryugin).
4. Lenenergo (for Galaktionov, Rybkin). 5. L'vovskiy enrgokombinat (for Kucheruk, Rakovich).

(Electric relays)

RYVKIN, P.; GAYEVSKIY, O., master sporta

At the start of the Spartakiada. Kryl. rod. 16 no.8:11 Ag '65.
(MIRA 18:8)

1. Nachal'nik Moskovskogo aviamodel'nogo kluba (for Ryvkin).

RYVKIN, P.; KUMAHIN, V., master sporta.

**What prevents model airplane builders from developing their skill?
A letter to the editor. Kryl. rod. 8 no.2:17 F '57. (MLRA 10:4)**

**1. Nachal'nik Moskovskoy gorodskoy aviamodel'noy laboratorii (for
Ryvkin). (Airplanes--Models)**

RYVKIN, P.

Young champions of the capital. Kryl. rod. 14 no.8:41 Ag '63.
(MIRA 16:8)

1. Nachal'nik Moskovskogo aviamodel'nogo kluba.
(Airplanes—Models)

RYVKIN, P.

Masters of sports are helping young airplane model builders. Kryn.
rod. 11 no.2:5 F '60. (MIRA 13:6)

1. Nachal'nik Moskovskogo gorodskogo aviamodel'nogo kluba.
(Moscow--Airplanes--Models)

RYVKIN, P.

Three decades to airplane modeling. Kryl. rod. 16 no.1:11
Ja '65. (MIRA 18:3)

1. Nachal'nik Moskovskogo aviamodel'nogo kluba.

ANTONOV, B. (Tashkent); RYVKIN, P.; KHODKEVICH, E., starshiy inzhener;
ABRANIN, V., inzhener-mekhanik; UKOLOV, N., metodist;
LYAKHOVETSKIY, M.

Facts, events, people. Kryl.rod. 13 no.4:22-23 Ap '62.

(MIRA 15:5)

1. Nachal'nik Moskovskogo aviamodel'nogo kluba
Dobrovol'nogo obshchestva sodeystviya armii, aviatsii i
flotu (for Ryvkin). 2. Moskovskaya oblastnaya stantsiya
yunykh tekhnikov (for Ukolov).

(Aeronautics)

AID P - 5518

Subject : USSR/Aeronautics - Model building

Card 1/1 Pub. 58 - 9/17

Authors : Ryvkin, P., Head of the City of Moscow Model-building
Laboratory, V. Kumanin, Master of Sports.

Title : What hinders the model-builders from developing their
skills?

Periodical : Kryl. rod., 2, 17, F 1957

Abstract : An analysis of the causes of the Soviet model-building
sportsmen lacking creative spirit in their approach to
the problems of their sport. The necessity is stressed
of a more systematic training of sportsmen interested in
model-building.

Institution : None

Submitted : No date

RYVKIN, P.

Walter Pochepaev contest winner. Kryn.rod. 11 no.8:7 Ag '60.

1. Nachal'nik Moskovskogo gorodskogo aviamodel'nogo kluba.
(Airplanes--Models) (MIRA 13:8)

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510020-8
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510020-8"
KUMANIN, V.; RYVKIN, P.; KHODKEVICH, E.; SOKOLOV, Yu.; KOSTENKO, I.;
KUPFER, M.; VASIL'YEV, A.; POSTNIKOV, Yu.; TARAKANOV, A.

More attention to plane modelina as a sport; letter to the editor.
Kryl.rod. 5 no.12:16 D '54. (MLRA 7:12)
(Airplanes--Models)

RYVKIN: "APPROVED FOR RELEASE: Thursday, September 26, 2002 : CIA-RDP86-00513R001446510020-8
APPROVED FOR RELEASE: Thursday, September 26, 2002 : CIA-RDP86-00513R001446510020-8"

Dissertation: "Separation of Materials with the Aid of Corona Discharge." Moscow Mining
Inst imeni I. V. Stalin, 8 May 47.

SO: Vechernnyaya Moskva, May, 1947 (Project #17836)

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510020-8
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001446510020-8"
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Electrostatic separator. Patent U.S.S.R. 77,957 , Dec. 31, 1949.
(CA 47 no.19:9830 '53)

RYVKIN, P. M.

Ore Dressing

Classification of electric methods of concentration, Nauch. trudy Mosk. gor. inst.,
No. 8, 1950.

9. Monthly List of Russian Accessions, Library of Congress, October 1953, Uncl.
2

DERKACH, Viktor Gershovich; RYVKIN, P.M., redaktor; YEZDOKOVA, M.I.,
redaktor; EVENSON, I.M., tekhnicheskii redaktor.

[Magnetic separation of low magnetic ores] Magnitnoe obogashchenie
slabomagnitnykh rud. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry
po chernoi i tsvetnoi metallurgii, 1954. 296 p. (MLRA 8:1)
(Magnetic separation of ores)

ANDREYEV, A.B.; ANTONOV, A.I.; ARAPOV, P.P.; BARMASH, A.I.; BEDNYAKOVA,
A.B.; BENIN, G.S.; BERESNEVICH, V.V.; BERNSHTEYN, S.A.; BITTUTSKOV,
V.I.; BLYUMENBERG, V.V.; BOMCH-BRUYEVICH, M.D.; BORMOTOV, A.D.;
BULGAKOV, N.I.; VEKSLER, B.A.; GAVRILENKO, I.V.; GENDLER, Ye.S.,
[deceased]; GERLIVANOV, N.A., [deceased]; GIBSHMAN, Ye.Ye.;
GOLDOVSKIY, Ye.M.; GORBUNOV, P.P.; GORYAINOV, P.A.; GRIMBERG, B.G.;
GRYUNER, V.S.; DANOVSKIY, N.F.; DZEVUL'SKIY, V.M., [deceased];
DREMAYLO, P.G.; DYBETS, S.G.; D'YACHENKO, P.F.; DYURNBAUM, N.S.,
[deceased]; YEGORCHENKO, B.F., [deceased]; YEL'YASHKEVICH, S.A.;
ZHREBOV, L.P.; ZAVEL'SKIY, A.S.; ZAVEL'SKIY, F.S.; IVANOVSKIY,
S.R.; ITKIN, I.M.; KAZHDAN, A.Ya.; KAZHINSKIY, B.B.; KAPLINSKIY, S.V.;
KASATKIN, F.S.; KATSAUROV, I.M.; KITAYGORODSKIY, I.I.; KOLESNIKOV,
I.F.; KOLOSOV, V.A.; KOMAROV, N.S.; KOTOV, B.I.; LINDE, V.V.;
LEBEDEV, H.V.; LEVITSKIY, N.I.; LOKSHIN, Ya.Yu.; LUTSAU, V.K.;
MANNERBERGER, A.A.; MIKHAYLOV, V.A.; MIKHAYLOV, N.M.; MURAV'YEV, I.M.;
NYDEL'MAN, G.E.; PAVLYSHKOV, L.S.; POLUYANOV, V.A.; POLYAKOV, Ye.S.;
POPOV, V.V.; POPOV, N.I.; RAKHLIN, I.Ye.; RZHEVSKIY, V.V.; ROZENBERG,
G.V.; ROZENTRETER, B.A.; ROKOTYAN, Ye.S.; RUKAVISHNIKOV, V.I.;
RUTOVSKIY, B.N. [deceased]; RYVKIN, P.M.; SMIRNOV, A.P.; STEPANOV, G.Yu.,
STEPANOV, Yu.A.; TARASOV, L.Ya.; TOKAREV, L.I.; USPASSKIY, P.P.;
FEDOROV, A.V.; FERRE, N.E.; FRENKEL', N.Z.; KHEYFETS, S.Ya.; KHLOPIN,
M.I.; KHODOT, V.V.; SHAMSHUR, V.I.; SHAPIRO, A.Ye.; SHATSOV, M.I.;
SHISHKINA, N.N.; SHOR, E.R.; SHPICHENETSKIY, Ye.S.; SHPRINK, B.E.;
SHTERLING, S.Z.; SHUTYY, L.R.; SHUKHAL'TER, L. Ya.; ERVAYS, A.V.;

(Continued on next card)

ANDREYEV, A.B. (continued) Card 2.

YAKOVLEV, A.V.; ANDREYEV, Ye.S., retsenzent, redaktor; BERKEM-
GIM, B.M., retsenzent, redaktor; BERMAN, L.D., retsenzent, redaktor;
BOLTINSKIY, V.N., retsenzent, redaktor; BONCH-BRUYEVICH, V.L.,
retsenzent, redaktor; VELLER, M.A., retsenzent, redaktor; VINOGRADOV,
A.V., retsenzent, redaktor; GUDTSOV, N.T., retsenzent, redaktor;
DEGTIAREV, I.L., retsenzent, redaktor; DEM'YANYUK, F.S., retsenzent;
redaktor; DOBROSMYSLOV, I.N., retsenzent, redaktor; YELANCHIK, G.M.
retsenzent, redaktor; ZHEMOCHKIN, D.N., retsenzent, redaktor;
SHURAVCHENKO, A.N., retsenzent, redaktor; ZLODEYEV, G.A., retsenzent,
redaktor; KAPLUNOV, R.P., retsenzent, redaktor; KUSAKOV, M.M.,
retsenzent, redaktor; LEVINSON, L.Ye., [deceased] retsenzent, redaktor;
MALOV, N.N., retsenzent, redaktor; MARKUS, V.A. retsenzent, redaktor;
METELITSYN, I.I., retsenzent, redaktor; MIKHAYLOV, S.M., retsenzent;
redaktor; OLIVETSKIY, B.A., retsenzent, redaktor; PAVLOV, B.A.,
retsenzent, redaktor; PANYUKOV, M.P., retsenzent, redaktor; PLAKSIN,
I.N., retsenzent, redaktor; RAKOV, K.A. retsenzent, redaktor;
RZHAVINSKIY, V.V., retsenzent, redaktor; RINBERG, A.M., retsenzent;
redaktor; ROGOVIN, N. Ye., retsenzent, redaktor; RUDENKO, K.G.,
retsenzent, redaktor; RUTOVSKIY, B.N., [deceased] retsenzent,
redaktor; RYZHOV, P.A., retsenzent, redaktor; SANDOMIRSKIY, V.B.,
retsenzent, redaktor; SKRAMTAYEV, B.G., retsenzent, redaktor;
SOKOV, V.S., retsenzent, redaktor; SOKOLOV, N.S., retsenzent,
redaktor; SPIVAKOVSKIY, A.O., retsenzent, redaktor; STRAMENTOV, A.Ye.,
retsenzent, redaktor; STRELETSKIY, N.S., retsenzent, redaktor;

(Continued on next card)

ANDREYEV, A.V., (continued) Card 3.

TRET'YAKOV, A.P., retsenzent, redaktor; FAYKMAN, Ye.M., retsenzent, redaktor; KHACHATYROV, T.S., retsenzent, redaktor; CHERNOV, H.V., retsenzent, redaktor; SHERGIN, A.P., retsenzent, redaktor; SHESTOPAL, V.M., retsenzent, redaktor; SHESHKO, Ye.F., retsenzent, redaktor; SHCHAPOV, N.M., retsenzent, redaktor; YAKOBSON, M.O., retsenzent, redaktor; STEPANOV, Yu.A., Professor, redaktor; DEM'YANYUK, F.S., professor, redaktor; ZNAMENSKIY, A.A., inzhener, redaktor; PLAKSIN, I.N., redaktor; RUTOVSKIY, B.N. [deceased] doktor khimicheskikh nauk, professor, redaktor; SHUKHGAL'TER, L. Ya, kandidat tekhnicheskikh nauk, dotsent, redaktor; BRESTINA, B.S., redaktor; ZNAMENSKIY, A.A., redaktor.

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1. Chlen-korrespondent AN SSSR (for Plaksin)
(Technology---Dictionaries)

DERKACH, Viktor Grigor'yevich; KOPYCHEV, Petr Alekseyevich; OLOFINSKIY, N.F., kandidat tekhnicheskikh nauk, retsenzent; **RYVKIN, P.M.,** redaktor; **YEZDOKOVA, M.L.,** redaktor izdatel'stva; **EVENSON, I.M.,** tekhnicheskii redaktor

[Special methods of ore dressing] Spetsial'nye metody orogashchenia poleznykh iskopaemykh. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1956. 344 p. (MIRA 10:1)
(Ore dressing)

AKHUNDOV, Bakhman Yusefovich, doktor ekon.nauk; RYVKIN, S., red.;
MOSKVINA, R., tekhn.red.

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the revolution] Monopolisticheskie kapital v dorevoliutsionnoi
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RYVKIN, S.; KONOVALENKO, B.

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(Photoelectric cells) (MIRA 11:2)

MAYEVSKIY, Ivan Vasil'yevich, doktor ekon.nauk; RYVKIN, S., red.; PIOTROVICH, M.
tekhn.red.

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russkoi promyshlennosti v usloviakh Pervoi Mirovoi voyny. Moskva,
Gos.izd-vo polit. lit-ry, 1957. 390 p. (MIRA 11:2)
(Russia--Industries)

BLYUMIN, Israil' Grigor'yevich; RYNDINE, M., redaktor; RYVKIN, S., redaktor;
Mukhin, Yu., tekhnicheskii redaktor.

[Sketches of the contemporary bourgeois political economy of the United
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Moskva, Gos. izd-vo polit.lit-ry, 1956. 277 p. (MLRA 9:4)
(United States--Economic conditions)

AFANAS'YEV, Lev Aleksandrovich; RYVKIN, S., redaktor; MUKHIN, Yu.,
tekhnicheskii redaktor

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(Labor and laboring classes) (Unemployed)

KUTATELADZE, Samson Semenovich; BORISHANSKIY, Vaniamin Mironovich;
MOCHAN, S.I., RED.; ARMAND, A.A., retsenzent; BERMAN, L.D.,
retsenzent; DOROSHCHUK, V.Ye., retsenzent; LEL'CHUK, V.L.,
retsenzent; PIROGOV, M.S., retsenzent; RYVKIN, S.A., retsenzent;
SOKOLOV, Ye.Ya., retsenzent; ZABRODINA, A.A., tekhn.red.;
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(Heat--Transmission)

ROZENBERG, M.S.; RYVKIN, S.A.; SETSKO, V.I.; POPOVSKIY, V.M.

Pilot plant for a rapid upgrading of wet fuels in hot fuel
oils. Khim. i tekhn. topl. i masel. 8 no.3:33-36 Mr '63.
(MIRA 16:4)

(Petroleum as fuel)

FEOKTISTOV, V.N.; LANEYEVA, N.S.; MATVEYEV, V.V.; RYVKIN, S.B.

Recent developments in testing shoe materials for multiple bending.
Kozh.-obuv. prom. no.5:24-27 My '59. (MIRA 12:6)
(Boots and shoes--Testing)

CHUVIKOV, Pavel Andreyevich; RYVKIN, S., red.; CHEPELEVA, O., tekhn.red.

[In peaceful competition] V mirnom sorevnovanii. Moskva, Izd-vo
sotsial'no-ekon.lit-ry, 1959. 46 p. (MIRA 13:4)
(Russia--Economic policy) (Automation)

KUZ'MINA, N.G.; FEOKTISTOV, V.N.; MATVEYEV, V.V.; STERLIGOV, I.H.;
RYVKIN, S.B.

New developments in testing oil cloth and bookbinding
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(Leather substitutes--Testing)

"Experimental investigation of the heat capacity of ethyl alcohol and its solutions in water in the supercritical region."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

F. E. Dzerzhinskiy All-Union Heat Engineering Inst.

Photoelectric properties of indium selenide and selenide.
B. T. Kotomiet and S. M. Ryykijä. *Zhur. Tekh. Fis.* 17, 987-92 (1947).—The spectral curve of the photocond. of InSe, prepd. by fusion *in vacuo*, in the form of a compact plate, has a max. in the infrared, at about 1.0μ . Evapd. films on glass show photocond. only after thermal treatment, and then there is also a max. in the infrared, e.g. at 1.1μ . InSe and In₂Se₃ show only very slight photocond. No photocond. could be detd. for compact plates of InS, owing to exptl. difficulties. Films showed no photocond. even after thermal treatment, although their dark cond. was higher than that of the compact material. Treatment of a film of InSe in Se vapor at 300-300° for as short a time as 10 min. resulted in a shift of the max. of sensitivity to the visible, 500 mμ. The whole spectral curve of the photocond. of Se-treated InSe, including the position and the height of the max., is very similar to that of pure Se. That this is not simply the result of the formation of a superficial layer of pure Se, but is linked with a change extending throughout the whole depth of the specimen, is demonstrated by the fact that the effect is the same whether the light falls on the side previously exposed to Se vapor or on the other side. The Se-vapor treatment also renders InSe more nearly transparent, and changes its absorption spectrum. The max. at 500 mμ persists even if the sample is heated to 300°, at which temp. a superficial film of Se would be removed. InS, which shows no photocond. in compact plates, becomes photoconducting after treatment with S vapor, with a max. at 420 mμ, as compared with 470-80 mμ for pure S. Treatment of InSe with S gives the same spectral distribution as InS + S, and treatment of InS with Se, the same curve as InSe + Se. Interpretation of these phenomena is uncertain.

N. Thon

CA

Temperature dependence of photoconductivity in cuprous oxide. V. P. Zhurav and S. M. Ryvkin (Leningrad Phys. Tech. Inst.). *Doklady Akad. Nauk S.S.R.* 58, 1629-1631 (1947).—Cu₂O illuminated with square-wave type of light impulses gives the same shape of photocond. curve as the imposed light intensity function at room temp., i.e. no noticeable inertia exists. As temp. is dropped the value of photocond. rises rapidly and the curve assumes an approach to a triangular sawtooth shape. For the material used the value of the time const. τ is 1.3×10^{-4} sec. at room temp., while at -70° it is 0.044 sec. and at -105° it is 0.4 sec.
G. M. Kholapoff

USSR/Physics

Condensers, Semi-
Photoconductivity

Dec 48

"Condenser Method for Studying Photoelectric Dynamic
Forces," S. M. Rykin, Leningrad Physicotech Inst,
Acad Sci USSR, 22 pp

"Zhur Tekh Fiz" Vol XVIII, No 12

Presents an approximation theory for the condenser
method of studying the photoelectric properties of
semiconductors. Shows that under some of the con-
ditions observed, this method can be utilized for
studying the actual photoelectric dynamic forces
during the period of existence and the value of

19/497106

USSR/Physics (Contd)

Dec 48

the photocurrent carrier. Gives results of some
experiments. Submitted 26 Jul 48.

RYVKIN, S. M.

19/497106

RYVKIN, S. M.

"Excluding the Effect of the Contact Field in Photoelectromotive Force," Zhur.
Tekh.Fiz., 19, No.2, 1949

Leningrad Physico-Tech.Inst., Dept. Physico-Math. Sci., AS USSR

CA

Complex investigation of the photoconductivity of cuprous oxide. S. M. Ryvkin (Leningrad Phys. Tech. Inst.). *Doklady Akad. Nauk S.S.S.R.* 68, 487-90(1949); cf. *C.A.* 44, 7849a. —The stationary photocond. $\Delta\sigma$, attained after prolonged illumination, can be represented as a product $\Delta\sigma = e n k \beta I$ of e = electron charge, n = mobility of the current carriers, τ = their mean life, k = absorption coeff., I = light intensity (quanta/sec.), β = quantum yield. The magnitude k drops out for samples of sufficient thickness $d \gg 1/k$, with a linear recombination law, and in illumination perpendicular to the elec. field; under these conditions $\Delta\sigma = L e n \tau \beta I$, where the const. L depends on the dimensions of the sample. In Cu_2O , the temp. dependence of n is slight, and the temp. dependence of the photocond. is mainly detd. by τ and β . The method of rectangular illumination impulses (*Ibid.* 58, 1629(1947)) with equal periods of light and darkness permits simultaneous detn. of $\Delta\sigma$, τ , and β . The instantaneous photocond. $\Delta\sigma = \Delta\sigma_0 \tanh(t_1/2\tau)$, where t_1 = duration of an impulse, or $\Delta\sigma = \Delta\sigma_0 \tanh(1/f, \tau f)$, where f = frequency of the intermittent illumination. Condition of the measurement of $\Delta\sigma_0$ is $t_1 \gg \tau$, hence $\tanh(t_1/2\tau) \rightarrow 1$, and then the measured

$\Delta\sigma \rightarrow \Delta\sigma_0$. For the measurement of β it is necessary to suppress recombination; this can be approximated by staying at the initial stage of the illumination, i.e. by choosing periods of illumination t short as compared with τ , sep'd. by dark periods t_d long relative to τ . Under these conditions, $\Delta\sigma = \text{const. } n \beta$. The same result is obtained with $t = t_d \ll \tau$. In exptl. detns. on Cu_2O , τ was found to increase rapidly, and β to decrease with decreasing temp. On the log scale, $\log \sigma$ (dark cond.) and $\log \beta$, as functions of $1/T$, are represented by straight lines (except for the initial portion of $\log \beta$) nearly parallel to each other. The slopes of $\log \sigma$, $\log \beta$, and $\log \tau$, are very nearly equal for the same sample. Extrapolated to room temp., τ for various samples of Cu_2O varied between 1.3×10^{-4} and 5×10^{-4} sec. The temp. variation of τ is represented by $e^{E/RT}$, with E coinciding with the dissocn. energy in the temp. dependence of σ . Below 40° , β varies according to the same exponential law, with the same E ; at higher temps., the temp. dependence of β becomes slower and finally disappears. In the high-temp. region, $\Delta\sigma_0$ increases with the temp. mostly along the same $e^{E/RT}$ exponential; in the low-temp. range, $\Delta\sigma_0$ varies only slightly.

N. Thon

1957

The mechanism of photoconductivity of cuprous oxide.
V. P. Zhuze and S. M. Ryvkin. (Acad. Sci., U.S.S.R.,
Leningrad). *Doklady Akad. Nauk S.S.S.R.* 68, 673-6
(1979); cf. *ibid.* 487.—The thermal dependence of dark
cond., stationary photocond., lifetime of the photoelec.
carrier, and the coeff. of the quantum yield for the inner
photoelec. effect are explained in terms of a "hole" pic-
ture. It is assumed that light excites electrons not from
the lower band but from the impurity levels, and these
electrons rapidly fall back into the trapping levels. Equa-
tions of balance are set up for the electrons in the impurity
and trapping levels and the holes in the lower band. On
illumination, the no. of holes is increased. The differen-
tial equation is solved for this no. and the result is used
to calc. the total no. of carriers created by light in the
sample. The resulting equation for the photocond. agrees
with expt. if it is assumed that the recombination coeff.
for holes plus electrons in impurity levels is much greater
than the recombination coeff. for holes plus electrons in
the trapping levels.

M. J. Sienko

RYVKIN, S. M.

USSR/Physics - Photoconductivity
Conductors, Semi-

Feb 50

"Complex Investigation of Photoconductivity.
I. Setting Up the Problem and the Method of
Investigation," S. M. Ryvkin, Leningrad Phys-
icotech Inst, Acad Sci USSR, 13 pp

"Zhur Eksper 1 Teoret Fiz" Vol XX, No 2

Photoconductivity can be represented as a ser-
ies product of independent parameters. Com-
plete study is possible only for individual
studies of all parameters and exclusion of sec-
ondary phenomena. Square light pulses permit

156T96

USSR/Physics - Photoconductivity
(Contd)

Feb 50

Instantaneous study of stationary photoconduc-
tivity, life span of carriers, and quantum
yield of internal photoeffect in semiconduc-
tors. Submitted 8 Aug 49.

156T96

RYVKIN

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517.312.5

1840. Fundamental investigation of photoconductivity. II. Photoconductivity of cuprous oxide. V. P. ZIL'BER AND S. M. RYVKIN. *J. Exp. Theor. Phys., USSR*, 20, 152-65 (Feb., 1950) In Russian.

Temperature variation has been investigated of: stationary photoconductivity, life period of the photocurrent carriers, and the quantum yield of the internal photoeffect of Cu_2O . It has been found that there exists an exponential law between the quantum yield β (also life period τ) and the reciprocal temperature; a relationship has also been found between the dark conductivity σ and photoconductivity. A theoretical explanation of these relationships has been suggested, based on the assumption that the photoconductivity of Cu_2O is due to "admixture."

P. LACHMAN

METALLURGICAL LITERATURE CLASSIFICATION

CA

Measurement of the quantum efficiency of the inner photoeffect in cuprous oxide. S. M. Ryvkin (Leningrad Phys.-Tech. Inst.). *Doklady Akad. Nauk S.S.S.R.* 72, 481-4 (1959).—The quantum efficiency δ is detd. from the relation, valid for a linear photoconductor, $\Delta\sigma = k\mu\delta I_0/l$, where $\Delta\sigma$ = the stationary elec. photocurrent car. resp. the mobility and the life of the photocurrent carriers, I_0 the no. of quanta per sec. on unit area, k and l the dimensions of the sample; with $I_0 = J/k$, where J = the total light per sec. over the whole exposed area. The stationary $\Delta\sigma$ was detd. as described previously (Zhuzhe and R., *ibid.* 58, 1829 (1947)), r by the procedure of Tolstol and Feofilov (*ibid.* 58, 389 (1947)); 66, 365 (1949)), μ from the dark cond. and the Hall const. Measurements in $\lambda = 0.63 \mu$, at room temp., gave δ of the order of 1%, falling with increasing temp. to 0.0005% at 120°. The surprisingly low δ may be accounted for if the former scheme of Zhuzhe and R. (*C.A.* 44, 2842g) is supplemented by a recombination of upper-zone electrons with acceptor levels of O. N. Thom

1. RYVKIN, S. M.
2. USSR (600)
4. Fluorescence
7. Extending the limits of applicability of Tolstoi's and Feofilov's method towards short-time periods in the study of exposure processes. Izv. AN SSSR. Serv fiz. 15, no. 6, 1951.

9. Monthly List of Russian Accessions, Library of Congress, January, 1953. Unclassified.

RYVKIN, S.M.

CA

The exciton character of absorption of light and impurity photoconductivity. V. P. Zhurav and S. M. Ryvkin (Leningrad Phys.-Tech. Inst.). *Doklady Akad. Nauk S.S.S.R.* 77, 241-4 (1951).—The conclusion that the photocond. of Cu_2O is of an impurity character, established by previous exptl. work (*ibid.* 68, 487 (1949); *Zhur. Eksp. Teor. Fiz.* 18, 1521 (1948); 19, 246 (1949); 20, 152 (1950); *C.A.* 43, 4824; 44, 2812) and confirmed by observations of Okada and Uno (*C.A.* 44, 5007) that, in the vicinity of the limit of the absorption band at 0.63μ , the photocond. increases with the content of excess O, involves the difficulty that, in this range, the absorption is much too high to be attributed to the very small no. of electrons on the impurity acceptor levels. This difficulty is resolved, without abandonment of the previously assumed zone scheme, by attributing the transition of electrons from the impurity level M to the conduction zone, not to direct action of the light quanta on the impurity atoms, but to secondary absorption of light by the main crystal lattice. The exciton thus produced can either recombine or meet an ionized impurity center and transmit its energy, thus lifting an electron from the impurity level to the conduction zone; this constitutes a sort of "exciton collision of the 2nd kind." At low temps., the concn. of electrons in M is small, and hence practically all the excitons will recombine, and the photoelec. quantum yield will be small. At a sufficiently high temp., the no. of electrons on M will be high, and

practically all the excitons will end in collisions of the 2nd kind, with a resulting max. quantum yield. If the no. p of excitons produced in unit vol. per unit time is proportional to the light energy $h\nu$ absorbed, $p = \alpha h\nu$, where the factor α expresses the "exciton yield." With τ and τ' denoting, resp., the mean life of the exciton until a collision of the 2nd kind and a recombination, and n = concn. of ionized impurity atoms (electrons in M), v = velocity of the exciton, q = cross section for the collision, one has $\tau = 1/nq$; the mean life in the intermediate case, where both recombination and collisions of the 2nd kind are significant, is $\tau = \tau' \tau / (\tau' + \tau)$, and the no. p_1 of excitons effective in lifting electrons into the conduction zone is $p_1 = p \tau / (\tau + \tau')$, where $s = 1/qv$, or, finally, $p_1 = \alpha h\nu / (s + n)$. From the kinetic equations, in the case where the trapping levels M' are metastable, and the photocond. is of the hole type, the observed quantum yield is found $\beta = (nq/2) \tau / (s + n)$, where n = concn. of the pos. holes. At low temps., $n \ll s$, and $\beta = (nq/2) \tau \sim e^{-s/\tau}$, whereas at high temps., where n can exceed s , $\beta = nq/2 = \text{const.}$ This temp. dependence of β is in agreement with previous observations. The same mechanism of photocond. may hold in alkali halide crystals, and the internal photoelec. effect may be contingent on collisions of the 2nd kind between excitons and ionized F centers. It is not observed at ordinary temps. in the region of the absorption, but should appear on simultaneous illumination with the wave length of the F band or on heating.

N. Thon

USSR/Physics - Semiconductors

Jan/Feb 52

"Photoconductivity of Cuprous Oxide," V. N. Zhuzhe, S. M. Ryvkin, Leningrad Tech Inst, Acad Sci USSR

"Iz Ak Nauk SSSR, Ser Fiz" Vol XVI, No 1, pp 93-107

Attempts to prove that specific stationary photocond may be characterized by: absorption coeff, coeff of "quantum output," mean lifetime of photocurrent carriers and mobility of photocurrent. Refers to previous works (cf. S. M. Ryvkin, "Dok Ak Nauk SSSR" Vol LXVIII, 673, 1949; "Zhur Eksper 1 Teoret Fiz" 20, 139, 1949) and mentions recent expts by Ye. F. Gross and N. A. Karryev, who are

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believed to have found the optical spectrum of the exciton. (cf. Ye. F. Gross and N. A. Karryev, "Optical Spectrum of the Exciton," "Dok Ak Nauk SSSR" Vol LXXIII, 3, 1951). Indebted to A. F. Ioffe.

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RYVKIN, S. M.

RYVKIN

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FA 236T96

USSR/Physics - Photo Resistors

Oct 52

"Letter to the Editor. Problem of the General Criterion for Choosing Between the 'Barrier' and 'Concentration' Theories of Photo Resistance," S. M. Ryvkin

"Zhur Tekh Fiz" Vol 22, No 10, pp 1693-1695

Discusses article of A. Gibson (Proc Phys Soc B, 64, 603, 1951). Cites V. P. Zhuze (1950), V. Ye. Lashkarev, and G. A. Fedorus (1952). Considers problem of establishing a general criterion for determining whether a photo resistor is of the barrier or concentration type.

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Fundamental investigation of the effect of oxygen on the electric and photoelectric properties of the lead sulfide photoresistances. S. M. Ryvkin. *Izv. Akad. Nauk SSSR, Tekh. Fiz.* 22, 1030-44 (1952); *Science Transl.* 305, 730 (1953); cf. G.A. 46, 10859b. The text is an investigation on the effect of the "reversible" (loosely bound) O show that, after high-temp treatment, the PbS layers absorb O vigorously also at ordinary temp, the absorption being centered in the interstices between the small crystals of PbS. The absorption of O changes the properties not only of the interstices but also of the whole layer, viz. both the elec. and photoelec. cond. increase following the same law. When O is absorbed, the "time const. of photocond." increases in accordance with the same law as that obeyed by the increase of photocond. itself. The bond energy between O and the layer (interstices) varies from 0.25 to 0.56 e.v. for the samples tested. The coeff. of diffusion of O in the interstices is about 10^{-14} cm²/sec. at 30-40°, the energy of activation of diffusion being a few tenths of 1 e.v. K. L. C.

37 30

Effect of oxygen on the conductivity and photoconductivity of lead sulfide photoresistors. S. M. Ryvkin and L. N. Malakhov (Leningrad Phys.-Tech. Inst., *Doklady Akad. Nauk S.S.S.R.* 85, 703-4 (1952)).—Controlled aints. of "reversible," i.e. weakly bound, O (I) were introduced into PbS by way of satn. at room temp. and partial outgassing *in vacuo* at a somewhat higher temp. T (32.5, 40, 40°) for a definite length of time t , and reverting to room temp. where the I content, attained at the higher T , remained practically unchanged; at any given T , a longer t means lower I content in the PbS. The stationary photocond. $\Delta\sigma_s = e\mu_0\beta h I$ (where μ_0 = mobility of the carriers of the photocurrent, τ = their mean life, β = quantum efficiency, h = absorption coeff., I = intensity of light in no. of quanta) and τ were measured as functions of t , taken as a measure of the I content. The 2 curves are very nearly identical, both $\Delta\sigma_s$ and τ falling in the same manner with increasing t . This correlation proves that, of the magnitudes detg. $\Delta\sigma_s$, only τ depends on the content of I, and that neither β nor μ_0 is affected by it. It therefore would appear that the O

atoms in PbS do not play the role of centers of an impurity photoeffect. It could be expected that the I content should have the same effect on μ_0 and on the mobility μ_0 of the carriers of the dark current, and, since it was found to have no effect on μ_0 , it should have none on μ_0 either. This conclusion was tested by measurements of the dark cond. σ_d and of $e\mu_0\mu_0$ (where μ_0 = concn. of the carriers in the dark) and of the Hall const. R_H giving μ_0 . It developed that, while μ_0 is practically independent of the I content, $\sigma_d = R_H\sigma_s$ falls with increasing t (decreasing I) in the same manner as σ_s itself. The conflict between this result and the prediction can be settled by assuming, with Hahn (C.A. 46, 13214) that in polycryst. PbS, R_H is detd. mainly by the well-conducting PbS crystallites, whereas σ_d depends on the poorly conducting intercryst. layers. If so, μ_0 is not equal to $R_H\sigma_s$, and, further, I is localized in the intercryst. layers and does not penetrate into the crystallites. Inasmuch as $\Delta\sigma_s$ varies with the I content in the same manner as σ_s , it follows that the photocond. also depends on the intercryst. matter. N. Thou

(PA 56 no. 671:7677 '53)

RYVKIN, S.M., kandidat fiziko-matematicheskikh nauk, ~~PARINSKIY~~, R.L., redaktor; KORNILOV, B.I., redaktor.

[The effect of radiation on semiconductors and insulators; a collection of translations] Deistvie izlucheni na poluprovodniki i izolatory; sbornik perevodov. Pod red. S.M. Ryvkina. Moskva, Izd-vo inostrannoi lit-ry, 1954. 279 p. (MIRA 8:5)

(Semiconductors)(Electric insulators and insulation)
(Radiation)

USSR

537.312.5
8296. On certain singularities of the photoelectric current in single crystals of cadmium sulphide. S. M. RYVKIN AND L. G. PARIISKI. *Zh. tekhn. Fiz.*, 27, No. 1, 3-17 (1954) in Russian.

An experimental investigation of the photoelectric current, photorectification, the current-voltage relations under illumination near the cathode, heterogeneous or non-uniformly illuminated specimens, the dependence of photocurrent under infrared illumination and the counting of α particles.

W. BARDLEY

USSR.

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②
Induced conductivity in layers and monocrystals of cadmium sulfide as a function of the energy of the exciting electrons. S. M. Ryvkin, B. M. Konoyalenko, and Yu. S. Smetannikova. *Zhur. Tekh. Fiz.* 24, 961-77(1984). CdS monocrystals were produced from the gas phase, or slabs of polycryst. CdS were prepd., both of which were used in the measurements. The exciting electrons in the range from 2 to 30 e.kv. produced a cond. The induced cond. was measured and it was found that from 30 down to 10 e.kv. it is practically independent of the energy of the exciting electrons. At lower energies an abrupt drop of the cond. is noted. Since the ionizing abilities of the electrons in the energy interval under investigation could not have changed, it is obvious that the drop for values below 10 e.kv. must be connected to a change in the depth of penetration of the electrons into the crystal. This drop of cond. is thus explained by the presence of "insensitive" layers formed at the surface. If one compares these results with the character of the internal photoeffect in a zone with internal absorption, then the similarity between the drop of the photoeffect at increasing energy of the light quanta and the drop of the induced cond. at the decrease of the energy of the exciting electrons is rather striking. In both effects one ascribes the cause to a decrease of the depth of penetration

of the ionizing radiation, and explains it by the presence of an "insensitive" layer at the surface of the sample.

Werner Jacobson

RYVKIN, S. M.

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GERM

537.311.33 : 548.289 1695
Determination of the Relation between Mobility
and Diffusion Coefficient for Photo-holes in n-Type
Germanium. — S. M. Ryvkin. (Zh. tekh. Fiz., Dec.
1954, Vol. 24, No. 12, pp. 2138-2149.) Detailed report
of an experimental investigation of the diffusion and
drift of photoelectrically produced holes. The results
confirm the theoretical prediction that Einstein's
formula (1) relating mobility to diffusion coefficient
applies in this case. The stationary distribution of
minority carriers in a partially illuminated semi-
conductor is discussed in an appendix.

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jw

Ryabin, S. A.

537.311.33
5874. INFLUENCE OF HEAT TREATMENT ON THE LIFE
OF THE SUBSIDIARY CURRENT CARRIERS IN GERMANIUM
(KINETICS OF THE FORMATION OF DEFECTS DURING
HEAT TREATMENT). T.V. Mashovets and S.M. Ryabin.
Zh. tekhn. Fiz., Vol. 25, No. 9, 1530-43 (1955). Russian.
The effect of thermal treatment at comparatively "low"
temperatures (400-500°C.) on the life of the subsidiary cur-
rent carriers in germanium is that the life decreases with
rising temperature and duration of the treatment. The cause
is the occurrence of defects acting as recombination centres.
Investigation of the kinetics of the defect formation process
yielded data on the energy structure of the defects.
Electrical Research Association

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Ryabin

USSR/Physics Photodiodes

Card 1/1 Pub. 153-2/21

Author : Alferov, Zh. I.; Konovalenko, B. M.; Ryvkin, S. M.; Tuchkevich, V. M.;
and Uvarov, A. I.

Title : Flat germanium photodiodes

Periodical : Zhur. tekhn. fiz. 25, 11-17, Jan 1955

Abstract : The authors describe the principal properties of germanium photodiodes of unique design and free from the usual deficiencies. In this design the illuminated area is not limited by the length of the diffusion displacement and can reach very large sizes corresponding to the total area of the n-p transition. They conclude: the germanium photodiode is a photocell valve to which considerable voltages can be applied in the closed direction; the sensitivity of the photodiode is about 300 times that of photocells with external photoeffect; the proper time of germanium photodiodes studied is about $1/10^5$ second, and can be decreased by decrease of the thickness of the n-germanium layer; the characteristics are very stable and free of "fatigue". Deficiencies are considerable temperature dependence of the dark current. The authors thank D. N. Nasledov, N. V. Shchetinina, and L. P. Bogomazov. Three references, including one USSR (S. M. Ryvkin, same issue, p. 21).

Institution: --

Submitted : October 13, 1954

USSR/Physics - Photodiodes

Card 1/1 Pub. 153-3/21

Author : Konovalenko, B. M.; Ryvkin, S. M.; and Tuchkevich, V. M.

Title : Sensitivity of germanium photodiodes to x-rays

Periodical : Zhur. tekhn. fiz. 25, 18-20, Jan 1955

Abstract : Numerous attempts have been made to utilize photocell valves as dosimeters of x-rays (e.g. V. M. Tuchkevich, Phys. ZS d. Sow. 5, 1934 and 7, 1935; I. M. Polyak and M. N. D'yachenko, ZhTF 22, 1952), but without practical results in consequence principally of the insufficient sensitivity. Recently a new type has been investigated, namely the germanium photodiode (same issue, p. 11; see preceding abstract). In the present article the authors expound certain results of their efforts on this problem; namely, they compare the sensitivity of germanium photodiodes and certain photocell valves under various conditions. They point to the possibility of the practical utilization of n-p transitions in germanium as dosimeters of intense x-rays (e.g. direct radiation). They thank D. N. Nasledov and N. I. Dodon. Six references: e.g. I. Shive, JOSA, 43, 1953: e.g. I. Shive, JOSA, 43, 1953.

Institution: --

Submitted : October 13, 1954

USSR/Physics - Germanium photodiodes

Card 1/2 Pub. 153-4/21

Author : Ryvkin, S. M.

Title : ~~Problem of the mechanism governing the action of germanium photodiodes~~

Periodical : Zhur. tekhn. fiz. 25, 21-28, Jan 1955

Abstract : The theory of photoelectromotive forces in semiconductors was developed by Ya. I. Frenkel' (Sov. Phys. 8, 1935), A. V. Ioffe and A. F. Ioffe (ZhETF 5, 1935), L. Landau and Ye. Lifshits (Sov. Phys. 9, 1936), B. I. Davydov (ZhTF 7, 1937), Yu. P. Maslakovets (ZhETF 10, 1940), V. Ye. Lashkarev (ZhETF 18, 1948; Izv. AN SSSR, ser. fiz. 16, 1952), and A. I. Gubanov (ZhETF 25, 1953); this theory explains in particular the mechanism governing the action of photocell valves and the relation between photo-emf and character of the contact field at the boundary semiconductor-metal, and established that the valve photo-emf arises in the presence of a blocking layer. In the present article the authors expound the principal notions concerning the operation of a n-p diode as a photodiode, and derive a basic relation among photo-emf, short-circuit photocurrent, and saturation current and also derive the general equation of

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of the photodiode; they expound the results of a quantitative experimental verification of the relation, and finally discuss the efficiency of photodiodes as photocell values. They thank N. Shchetinina and L. Kozhina. Nine references: e.g. I. Shive, JOSA 43, 1953.

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